PSYCHOSEXUAL FUNCTIONING OF CHINESE WOMEN AFTER TREATMENT FOR GYNECOLOGICAL CANCER: A CONTROLLED PROSPECTIVE STUDY

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ABSTRACT

Women with gynecologic cancer (n=57) and women with benign gynecologic disease (n=49) were assessed prior to, and then reassessed at 1-8 weeks and at least 1 year follow-up after the operation. The psychosexual functioning and adjustment of cancer women were compared with their counterparts, longitudinally. Women with cancer had lower levels of sexual drive, higher levels of sexual fantasy, lower degrees of body image dissatisfaction than women in the benign group. There were no significant group differences in psychosexual adjustment, including the resumption of intercourse, kissing and petting, and sexual fantasies, at 1 year follow-up study. However, the cancer group had more sexual problems than the benign group did. Time effects on psychosexual functioning of hysterectomized women were examined when combined the two groups as a whole. Results showed that women experienced fewer physical symptoms and less psychological disturbances, were less neurotic and more feminine, and had higher level of body image dissatisfaction after the operation. With regard to their sexual life, the levels of sexual drive were decreased after surgery, but elevated at 1 year follow-up, though not returned to the pre-operative level. Regression analyses manifested the following predictors: age was a significant predictor for the resumption of kissing and petting, follow-up level of sexual satisfaction and folk belief were for the time needed to resume kissing and petting, and pre-operation level of sexual drive was for the time needed to resume

intercourse. Future studies may pay more emphasis on how the cultural factor affects the sexual behavior of women. Provision of sexual counseling to both patients and partners is suggested.

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INTRODUCTION

Gynecologic cancer is the third most frequent cancer among women (next to lung and breast cancer) in Hong Kong. In 1989, 929 women were identified to have gynecologic cancer. In 1990 and 1991, 938 and 904 women were diagnosed to have genital cancer, respectively (Department of Health, 1992, 1993, & 1994). Gynecologic cancer includes the cancer of cervix, endometrium, ovary, and vulva. These cancer sites inherently affect body parts that are involved in sexual acts. Many researchers have agreed that this particular population of patients are at high risk for sexual sequelae (see review of Weijmar Schultz, van de Wiel, Hahn, & van Driel, 1992). The concomitant sexual morbidity of gynecologic cancer may occur as early as at the time of diagnosis, treatment, and with subsequent different treatment modalities (Beckham & Godding, 1990; Cochran, Hacker, Wellisch, & Berek, 1987; Lamb, 1995; Weijmar Schultz, Van de Wiel, Bouma & Lappohn, 1991).

Cain, Kohorn, Quinlan, Schwartz, Latimer, and Rogers (1983) noted that half of a group of newly diagnosed patients being treated for endometrial cancer have an immediate sexual impairment such as sexual intercourse. Other early sexual problems were decreased libido, decreased frequency of intercourse, and less communication between the couple regarding their sexual activities (Harris, Good, & Pollack, 1982). Reduction in coital frequency should, however, be distinguished from other intimate physical contact. Leiber, Plumb, Gerstenzang, and Holland (1976) reported that 37.5% of disease sample had inhibited sexual desire after the

cancer diagnosis, but 50% of them had increased desire for physical contact (Beckham & Godding, 1990).

Different treatment modalities of surgery, radiation therapy, and chemotherapy will subsequently interfere with sexual functioning of women with cancer in a variety of ways. Radical hysterectomy is a major surgical operation, which removes not only the uterus, the tubes and the ovaries but also the tissue between the uterus and the pelvic wall, the proximal vagina and the pelvic lymph nodes as well (Weijmar Schultz et al., 1991). The combination of radical hysterectomy with pelvic lymph node dissection and irradiation is an effective approach for the early stage of cervical cancer (Lamb, 1995). In the treatment of endometrial cancer, the options are total abdominal hysterectomy and bilateral salpingo-oophorectomy with or without pelvic lymph node sampling, radiation therapy, or a combined approach. Carcinoma of ovaries is usually treated by the surgical excision of the genital organs possibly followed by chemotherapy (Andersen, 1984). Any surgical procedure to remove genital organs is a significant attack on the integrity of the body, and will bring along adverse side-effects on both physiological and psychological aspects of an individual, for example, anatomical changes in genital tract and threat to one's body image (Guex, 1994).

Radiotherapy is an 'invisible' treatment, and is regarded as a treatment which does more harm than good (Abitol & Davenport, 1974). Radiation has an imminent damage to the structure of vagina. Pelvic irradiation for endometrial cancer may be used in both the early and late stages of the disease. Chemotherapy is the

administration of cytotoxic drugs through intravenous injection or oral medication (Guex, 1989). There are a variety of side-effects. Patients will have physical problems which are nausea, vomiting and extremely fatigue, and psychological disturbances such as depression. The period of suffering may be transient or long-term dehabilitation may occur. The consequences of cancer treatments on sexual morbidity of women with gynecologic cancer will be examined below.

Sexual Dysfunction

'Sexual' may simply refer to an individual's biological identity of either male or female. In the eighteenth century, this term was broadened to include the process of reproduction. In the nineteenth century, the term 'sexuality' began to be used as the pursuit of sexual pleasure, the need for love and personal fulfillment. This implies a relational factor in sexuality, that is, the development of an intimate relationship. This term encompasses feelings such as femininity, masculinity, desire, satisfaction, intimacy, loneliness, self-esteem, caring, and sharing (Byer & Shainberg, 1991).

Similarly, the World Health Organization Report on Education and Treatment in Human Sexuality (1975) declared that sexual health is the integration of the somatic, emotional, intellectual and social aspects of sexual being. In addition, other authors also emphasize on the importance of social and cultural influence on sexual expression, for example, the cultural norm in defining the socially acceptable sexual behavior (Lamb, 1995). In sum, 'sexuality' reflects and integrates biological, psychological, relational, and socio-cultural factors.

While sexuality is related to a wide range of determinants, sexual dysfunction of women with gynecological cancer is also at the root of these physiological, psychological, and social dimensions. Reviewed studies on psychosexual outcome of women with gynecologic malignancies (for example, Andersen & Hacker, 1983; Andersen, Lachenbruch, Anderson, & deProsse, 1986; Jenkins, 1988; Tamburini, Filiberti, Ventafridda, & DePalo, 1986) showed that the disease itself and treatment were detrimental to women's sexual functioning. The sexual dysfunction included inhibited sexual desire, decreased ability to reach orgasm, decreased sexual enjoyment/arousal, dyspareunia, and reduced frequency of sexual intercourse (Horton, 1991). Women with any one of these kinds of sexual dysfunction would have difficulty in enjoying sexual activities. Consequently, the sexual relationship with their partners will deteriorate.

Sexual desire is a drive for sexual activity (American Psychiatric Association, 1987). This may be enriched by sexual fantasy and high sexual hormonal level (Byer & Shainberg, 1991). Women with inhibited sexual desire may not be interested in sexual activity, and even avoid sexual contexts and/or sexual activity. Even though they may have full capacity for physical sexual responses, they will cease to and/or not have interests in initiating or responding to sexual stimulation. This inhibition probably becomes an obstacle in restoring and maintaining a sexual relationship.

Women with inhibited sexual arousal/excitement will describe that they do not feel aroused, nor respond to sexual activity, for example, sex foreplay (Beyer &

Shainberg, 1991). The inhibition of sexual arousal usually accompanies orgasmic dysfunction. Women who have orgasmic dysfunction may be unable to have erotic feeling in sexual relations. They may complain about the low frequency of orgasm, or a complete failure to achieve orgasm since she feels that she is not able to sufficiently arouse to experience an orgasm (Weijmar Schultz et al., 1991).

Dyspareunia is pain or discomfort with intercourse, and is the most common disorder causing sexual difficulties in women (Nadelson, 1979). Coital pain after treatment of gynaecological cancer may be so distressing as to hamper usual sexual activity, ranging from distracting sexual enjoyment to avoiding any sexual activities (Byer & Shainberg, 1991).

All these kinds of sexual dysfunction have been commonly found in women with cancer. Andersen and Jochimsen (1985) studied 41 women with early stage of cervical or endometrial cancer before receiving treatment. They reported that 75% of these women have already had substantial sexual impairment, for example, dyspareunia and vaginal bleeding. Other sexual problems experienced by this group included inhibited sexual desire (56%), inhibited sexual arousal (49%), inhibited orgasm (37%), and dyspareunia (37%). Notwithstanding, about 50% of these sexual problems were resolved or had become 'accepted'.

In addition, cancer treatment has a long-term impact on women's sexuality. In a prospective longitudinal study (Andersen, Anderson, & deProsse, 1989), a gynecological cancer group was compared with healthy women, and women with benign gynecological diseases. Immediate sexual disruption after treatment was the

diminution of sexual excitement among the two gynecological groups treated for either benign or malignant diseases. After all, problems in cancer group were more severe, and distressing. At 4- and 12-month posttreatment assessments, women with cancer had more significant sexual problems, for example, inhibited sexual desire, inhibited sexual excitement and dyspareunia than the other two groups.

Different treatment modalities can lead to various degrees of sexual disturbances. Andersen and Jochimsen (1985) compared sixteen women treated for gynecological cancer by surgery with healthy women. They concluded that the cancer group had more severe sexual dysfunction such as reduced frequency of sexual behavior and a lower level of sexual arousal. Here, sexual behavior included sexual intercourse, kissing and caressing. Similar results have been found in patients who received radiotherapy. Tamburini et al. (1986) noted that 33% of patients with cervical cancer treated by radiation therapy had deterioration in sexuality.

Some studies have focused on the impact of surgery and radiation therapy on patients' qualities of life in order to determine which modality is more preferable. However, the results are conflicting and can not determine which treatment is more favorable. In a recent review of the literature, Weijmar Schultz et al. (1992) noted that nearly all retrospective studies suggested that radiation therapy is more detrimental to the sexual functioning of patients than the surgical operation. In the studies by Abitbol, and Davenport (1974), and Seibel, Freeman, and Graves (1980), diminished or completely disrupted sexuality were detected in 44% to 79% for the irradiated group, and 6% to 19% for the surgical group. The former group usually

complained of dyspareunia, and problems over desire and arousal. Finally, they had a low frequency of masturbation and intercourse, were less satisfied with sex, and had less enjoyment of intercourse.

On the other hand, Vincent, Vincent, Gresis, and Linton (1975) studied the sexual concomitants of cervix carcinoma by a well controlled prospective trail. Fifty women participated in their study and were randomly assigned to be treated by either surgery or radiation. Groups were matched for age, socio-economic status, parity (number of children), and stages of disease. Few differences were found in the sexual functioning between the two treatment groups. Reports of diminished desire for coitus were obtained from 24% and 20% of the radiation therapy patients and of the operated groups, respectively. Decreased frequencies of intercourse were reported by 29% and 33% of the two groups.

The long-term effect of various treatment modalities was found to be inconclusive. Schover, Fife, and Gershenson (1989) indicated a delayed impact of radiotherapy on sexuality. Both operated and irradiated groups had a significant decrease in frequency of sexual activity. After one year, the radiotherapy group developed dyspareunia, and had more sexual problems with desire and arousal than the surgical group did. On the contrary, Vincent et al. (1975) noted that no difference in sexual functioning between two treatment groups was found at the 12-month post-treatment assessment. Hitherto, the previous research is usually not methodologically rigorous enough. When interpreting and comparing the results of these studies, several methodological problems can be identified.

(1) Problems of Using Interviews The reliability and validity of data collected from unstructured and semi-structured interviews (for example, Andersen & Wolf, 1986; Andersen et al., 1989; Vincent et al., 1975) are questionable. Respondents may be confused by the wording of questions and may give irrelevant answers. They may also make use of the interview to ventilate their concerns such as the services of hospital or their worries, rather than responding to the questions. These may compromise the validity of the study. Meanwhile, respondents' responses would be subject to the manner of asking questions of interviewer, for example, his/her intonation and gestures. Respondents may be over-cooperative or uncooperative, then give either socially desirable or argumentative answers. Therefore, the reliability of interview will be needed to be confirmed.

(2) Not Controlling Confounding Variables Nearly all studies are not well controlled, except for Vincent et al. (1975). Other factors, such as the stage of disease and the treatment modalities, will confound the final results. The relationship between the severity of women's sexual dysfunction and different treatment modalities may be affected by the stages of disease. The more severe the disease, the more invasive the treatment will be, thus resulting in more sexual disruption. Therefore, there is a necessity to control confounding variables to identify the relationships among variables.

(3) Absence of Control Group Without a control group, there is a problem in validating the results. Results may be due to gynecological symptoms or the operation rather than the cancer's effects. Therefore, recruitment of groups of either

women with gynecological symptoms, women undergoing hysterectomy, or healthy women may be deemed necessary to compare their sexual functioning with that of women with cancer. Among the previous western studies, only some of them had healthy or benign comparison groups, for example, Andersen et al. (1986).

(4) Diversity of Assessment Intervals The diverse moments of assessment make the inter-study comparison impossible. Differences in time intervals between assessments after treatment ranged from a few months to 10 years (Andersen & Hacker, 1983; Andersen et al., 1989; Weijmar Schultz et al., 1986). Degree of sexual disruption of women may be changed with time. Just after the operation, women may experience more sexual difficulties. However, after they recover from the operation, they may experience fewer problems.

(5) Absence of Statistical Analyses An absence of statistical analyses may make interpretation difficult. The findings may occur by chance. The relationship between variables may not be significant, even though the correlation is high.

(6) Problems of Retrospective Studies Responses collected from retrospective studies are likely to be biased. Memory biases toward the side-effects of treatment will incline to exaggerate the degree of sexual deterioration. Constructed memory may distort the evaluation of sexual satisfaction before disease and treatment. The results from pre-and post-treatment studies were found to have less deterioration in sexual outcome than the retrospective studies (Weijmar Schultz et al., 1992).

(7) Problems of Pre-Post-Treatment Studies The pre-post-treatment studies included assessments at both pre- and post- treatment stages. Theoretically, this

design would be relatively more favorable to avoid the faults in retrospective studies and to compare the pre- and post-treatment data. Nevertheless, the post-treatment data may also be biased due to the possible occurrence of 'response shift bias' and a rehabilitative effect (i.e. the Hawthorn effect and exposure in vitro). Patients who participate in a pre-post-treatment study may have already become aware of the sexual issue and may initiate discussion about sexual issues with medical doctors/nurses. This process may be therapeutic and result in enhancing psychosexual adjustment.

An Integrated Model of Sexual Functioning

After reviewing sexual dysfunction among women with gynecological cancer, the possible causes of sexual dysfunction will be discussed. As mentioned above, sexual dysfunction is rarely attributed to a single cause, and is multifaceted and linked with physiological, psychological, and social factors. In order to obtain a comprehensive picture of how sexual functioning being affected by cancer, an integrated model by Weijmar Schultz and van de Wiel (1991) will be used. Physical, psychological, and social variables will be measured against sexual functioning of women. Physical variable refers to the physical capacity of a woman to have sexual activities. Psychological variables encompass past experience, mood disturbances, myths and misinformation, gender identity, and self-esteem. The analysis of body image will substitute 'self-esteem', as body image is one of the components of self-esteem, and more specifically refers to how an individual views about his/her own body (Roseke, 1979). Social factor is the woman's relationship with her partner.

Sexual function is evaluated in terms of three aspects: intimacy, sexual arousal, and sexual (dis)satisfaction. (Figure 1).

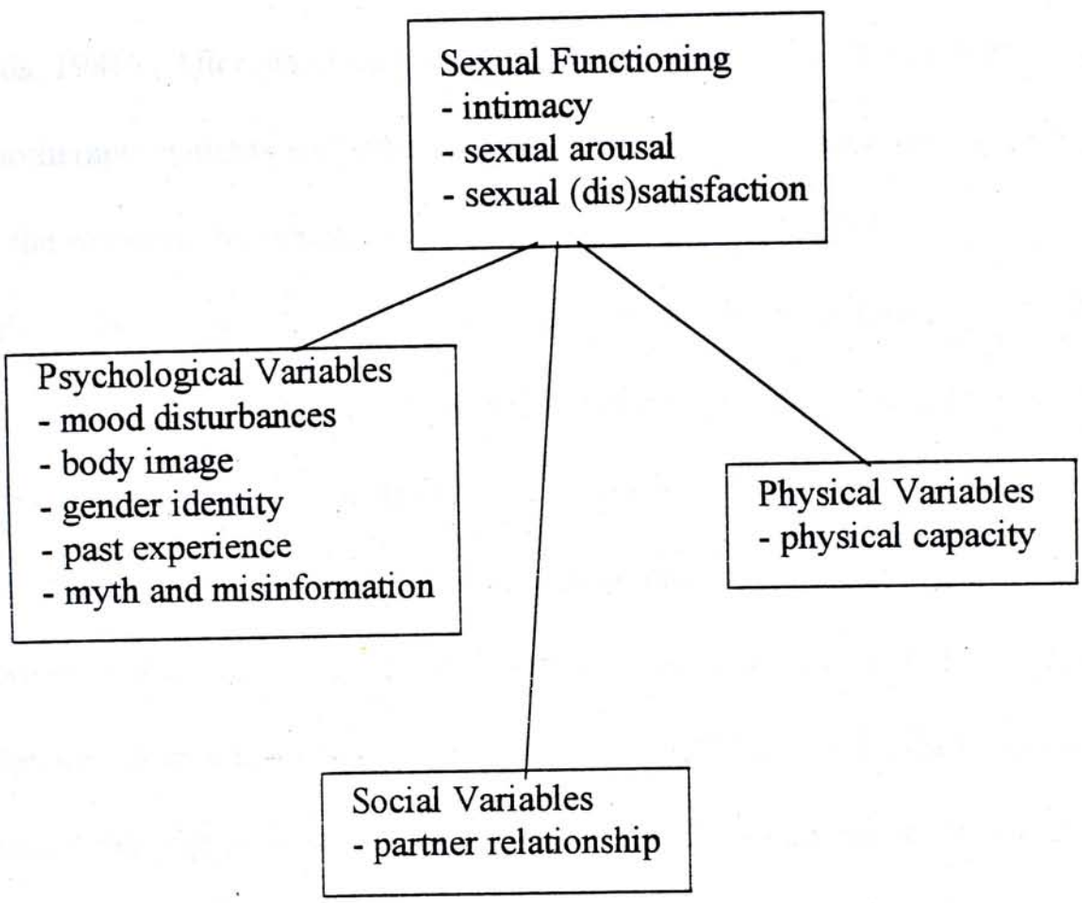
Physical Variables

The physical aftermath of cancer on sexuality have been well documented (for example, Curtis & Buemer, 1986; Lamb & Woods, 1981; Weijmar Schultz et al., 1991). Weijmar Schultz et al. (1992) noted that physical factors referred to the physical capacity of an individual to engage in sexual activity, that is the capacity to induce and work out sexual arousal and/ or orgasm. Women's physical capacity may be independent to their sexual desire. In other words, women who have decreased frequency of sexual activity may not have reduced in sexual desire. Nonetheless, the physical discomfort a woman may experience would inhibit sexual activity. Cochran et al. (1987) reported that the presence of physical discomfort was significantly correlated with reduced frequency of sexual relations. The malignancies, aftereffect of treatment, and the subsequent anatomical changes in genital tracts all will hamper the physical capacity of cancer patients.

(1) Abnormal vaginal bleeding One of the symptoms of endometrial cancer and cervical carcinoma is abnormal vaginal bleeding. This symptom negatively affects sexual relationships between patients and their partners. They may note vaginal bleeding as aesthetically unappealing, and will fear and conceive that sexual activity may increase the likelihood of bleeding (Lamb, 1995; Horton, 1991; Salter, 1985). Specifically, postcoital bleeding was a significant disrupter of sexual activity, and women and their partners will avoid sexual intercourse (Andersen, 1984).

Figure 1.

An Integrated Model of Sexual Functioning



(2) Fatigue or Malaise Cancer patients usually complain of loss of energy, fatigue. Malaise is one physical manifestation of cancer, and interferes with the physical expression of feelings. Under this condition, patients will be too tired to think about sexual activity, thus inhibiting sexual desire (Krumm & Lamberti, 1993; Lamb, & Woods, 1981). After major surgical operation, during and after radiotherapy and chemotherapy, patients will experience extreme exhaustion and are less likely to have the resources to engage in any sexual activity (Guex, 1989).

(3) Pain One of the common symptoms of cancer is pain, including coital and postcoital pain. Dyspareunia is often found among gynecological cancer patients, and is commonly due to insufficient lubrication of vagina. There are several causes: the ravage of ovaries, anatomical changes of genital tracts, and penetrative sex. The failure of ovarian function will induce the thinning of, or the break-down of vaginal epithelium, diminution of natural vaginal lubrication, and diminished vitality of the tissues of the genital tract. The treatment, whether the surgical procedure or radiation therapy, will leave anatomical changes which will increase predisposition to trauma and infection (Andersen, 1984; Weijmar Schultz et al., 1991). Moreover, Abitbol and Davenport (1974) have noted that sexual act would lead to pelvic pain or discomfort.

Pain is most likely related to inhibition of sexual responsiveness due to the competition for attention between painfulness and sexual stimuli (Lamb, 1995; Lamb, & Woods, 1981). Females who have pain/dyspareunia would foresee the occurrence of pain during sexual activity so that they will avoid sexual activity and

have no enjoyment in their sexual life. In sum, pain may be associated with various forms of sexual dysfunction, for example, inhibition of sexual desire, arousal and abstinence from sexual activity (Andersen et al., 1989; Schover et al., 1989; Cochran, Hacker, Wellisch, Berek, 1987; Weijmar Schultz et al., 1992).

(4) Changes in Hormonal Level A high hormonal level, especially estrogen, can enhance female's sexual desire (Byer & Shainberg, 1991). In addition, estrogen is responsible for the lubrication of vagina. The deprivation of ovarian estrogen will inhibit sexual desire and vaginal dryness which is also related to dyspareunia (Lamb, 1995). Estrogen replacement therapy (ERT) will prevent or reduce some discomfort. This therapy, however, can only be used on patients with cervical or ovary carcinoma. For endometrial malignancies, the ERT will not be administered since estrogen has found to have a positive effect on the growth of endometrial cancer cells (Schain, 1990).

(5) Removal of Genital Organs The removal of uterus and cervix will disrupt sexual arousal and orgasm. Contraction of cervix and uterus is a feature of female orgasm (Byer & Shainberg, 1991). In the study by Schain (1990), radical hysterectomy for cancer patients is associated with diminished or completely disrupted sexual function in 6% to 19% of cancer survivors.

(6) Changes in Vaginal Canal Sexual dysfunction is also related to vaginal shortening or stenosis which may result in sensory loss and sexual difficulties (Horton, 1991; Jenskin, 1988; Schover et al., 1984; Weijmar et al., 1992). Vaginal shortening and stenosis are usually consequences of radical hysterectomy and

radiotherapy. Surgical operation will reduce the length of vagina or leave scar tissue. The upper 1/3 length of vaginal will be excised in the operation. The shortening or scarring in vaginal wall may induce dyspareunia.

In addition, the effects of irradiation include vaginal thinning, dryness, and stenosis (Horton, 1991; Lamb, 1995). Andersen and Hacker (1983) noted that when treatment produced major changes to vaginal canal, it was likely by radiation treatment and was associated with disrupted sexual functioning, for example, dyspareunia. They reported that major vaginal changes were noted in 78% of the irradiated, 10% of the surgical, and 60% of the combined treatment cases. Overlap between women having vaginal changes and also reporting significant sexual disruption occurred in 91% of the irradiated group, 50% of the surgical group, and 60% of the combined group. All these post-treatment effects were likely to reduce arousal or orgasm potential, even when women had sufficient desire for sexual activity (Andersen, 1984).

(7) Alteration of Arousal Mechanisms Autonomic and sensory nerve are related to females' sexual excitement and orgasm. Lymph node excision will disrupt these nerve supply to the vagina and surrounding vessels. As the lympathetic vessels and nerves are interwoven, the damage to the nerves is unavoidable. As a result, vaginal vasocongestion, lubrication, and expansion will be affected. Sensation during sexual arousal and sexual coitus may be compromised (Weijmar Schultz et al., 1991). They will have inhibited sexual excitement, and/or orgasmic dysfunction.

Psychological Variables

Apart from the physical debility imposed by cancer itself and its treatment, psychological morbidity among cancer sufferers was not uncommon. The psychological impact of cancer on sexual function of patients with cancer starts from the time of diagnosis to after treatment. The disease itself may directly make the patients emotionally disturbed and lower their body image. A woman's sense of gender identity, past experience, and myths and misinformation about their disease will also psychologically affect her sex life.

(1) Emotional Disturbance The diagnosis of malignancies will evoke a variety of emotional reactions such as anger, frustration, fear, sadness and resentment (Good, & Capone, 1980). Specifically, depression and anxiety are two common and persistent conditions for gynecological cancer patients and are likely to have serious impact on sexuality with inhibition of excitement and orgasm (Andersen & Hacker, 1983; Byer & Shainberg, 1991). Research on cancer patients identified from 17 to 25% of the study population as being moderately to severely depressed (Andersen, 1984). Cochran et al. (1987) noted that there was a significant negative correlation between depression and frequency of sex. Likewise, a depressed patient may exaggerate her somatic complaints, for example, sickness and fatigue. Even though her physical potentiality is intact, she may lose sexual interest (Guex, 1989).

Anxiety often arises when a woman is undergoing treatment for cancer. Patients are anxious regarding the cancer itself, uncertain of the effect of treatment, the prognosis of disease, and the possibility of death (Cantor, 1980). Symptoms of

cancer, for example, abnormal vaginal bleeding and pain, will also elicit anxiety reaction from the patients. Treatments such as the surgical operation and radiation therapy, will intensify patients' anxious response. Anxiety of females will accompany sexual problems in terms of decreased frequency of sexual activities and reduction of sexual desire (Corney, Everett, Howells, Crowther, 1992). Moreover, Andersen and Hacker (1983) noted that anxiety would inhibit sexual excitement and orgasm. In contrast, Andersen et al. (1989) suggested that sexual arousal problems were not anxiety-based. They measured the treatments' effects on the excitement / arousal problems of women and the level of sexual anxiety, and found that the changes of excitement measures were independent of the measures on anxiety.

(2) Body image An individual's attitudes (positive or negative feelings) toward his/her body is known as body image (Andersen & LeGrand, 1991). In general, it refers to how a woman perceives herself and further to influence her sense of well-being and sense of competence (Derogatis, 1980). Body image of women with genital tract malignancies should be assessed since they have undergone substantial changes in body areas (Andersen & Hacker, 1983; Schover et al., 1984). Women who underwent surgical procedures to remove reproductive organs may have the feeling like a 'sterile' shell (Schain, 1990). Body image of patients was positively related to their sexual functioning, as shown in the study by Bubie and Polinsky (1992). Women with negative body image were more likely to avoid sex. This was probably due to their fear of incapacity to have sex (Faith & Schare, 1993).

Andersen and Jochimsen (1983) agreed that body image was significantly affected by cancer itself. Those suffering from gynecologic malgniant diseases reported poorer body image evaluation than healthy women did, and even when compared to the breast cancer group, that is, 82%, 31%, and 38% of the three groups, respectively. However, they concluded that the body image disruption exerted little influence on sexual functioning evaluation since they found those patients with more disrupted body image reported evaluated their sexual life more positively than those with less disrupted body image. The relationship between the body image and sexual functioning should be further examined.

(3) Gender identity The relationship between a woman's gender identity and her sexual dysfunction is rather subtle. Genital organs are related to one's definition of gender identity since they are commonly viewed as the femininity, motherhood and sexuality of a woman (Vander Zanden, 1990). Research have indicated that individuals with polarized rather than androgynous sex role definitions were more prone to sexual difficulties (Andersen & Hacker, 1983). Women with extreme feminine role definitions tended to depend on their physical appearances to define their identity and sexual being (Derogatis, 1980, 1986). Under the cultural pressure on women to emphasize on the importance of sexual and reproductive organs, diseases on the genital organs may bring along not only the reactions to the loss of child-bearing ability but also personal fulfillment. After suffering alteration of the anatomical genital structure and removal of genital organs, women's female identity or the feeling of femininity has been demonstrated to be threatened (Krumm

et al., 1993; Weijmar Schultz et al., 1991). Negative affective outcome has been found commonly. Depression is commonly associated with gender identity problems (Derogatis, 1980). When a woman's gender identity is being threatened, she may think that she is not a woman any longer and may feel depressed. As mentioned above, depressed women will have lower level of libido so that the frequency of sexual activities would be decreased.

(4) Past experience Sexual experience before the onset of disease and/or treatment will be a factor in the vulnerability of sexual disruption. Patients with a limited repertoire of sexual activity were relatively susceptible to sexual dysfunction as they did not have experiences or did not learn the possible pleasures from sensate focus activity or various sexual activity (Horton, 1991). For example, they may not change positions in order to allow their anatomical changes during sexual activities.

(5) Myths and misinformation Knowledge on sexuality would be one of the components in assessing sexual functioning, and will affect sexual functioning psychologically. Myths and misinformation, however, is more to be likely negatively related to the normal sexual functioning. Andersen and Hacker (1983) noted that the ignorance per se contributed to sexual dysfunction in healthy population. This situation may be exacerbated in women with gynecologic diseases. Myths or misinformation will magnify the problems of sexual activity. Examples of myths include the misconception that cancer may be transmitted through intercourse (Krumm, & Lamberti, 1993), and the removal of reproductive organs might diminish libido (Schain, 1990). If a patient who underwent the operation to remove

her sexual organs held myths about sex and cancer, they might anticipate that they would lose interests in sex and their sexual satisfaction from sexual intercourse would be decreased as well (Guex, 1990). Having any misinformation, patients will be predisposed to have sexual disruption such as decreased sexual desire, lower level of libido, or abstinence of all forms of physical contact and sexual expression.

Social Variables

Sexuality will be a means of enriching a cherished intimate relationship. The two persons will care, be concerned for, and communicate with each other. Partner-related factor is a crucial component on sexual functioning of women. The availability, attitude, and health of partner, and the length of relationship will have an impact on the sexual rehabilitation of women (Andersen, & Hacker, 1983; van de Wiel et al., 1990). The presence of a stable relationship prior to the diagnosis with cancer enhances the women to cope with difficult situation in sexual activity (Lamb, 1995). In addition, the support from partners will be a buffer to alleviate the emotional responses of women so that they will be more likely to restore sexual relations (van de Wiel, Weijmar Schultz, Wonda, & Bouma, 1990). However, if women have negative body image and may withdraw from their partners, the intimate relationship will falter (Andersen & Wolf, 1986).

- On the other hand, the negative responses of partners toward women having hysterectomy will inhibit their sexual activity. When partners consider women whose sexual organs are removed as 'half a woman', their perception on the attractiveness of their women would diminish and men would have emotional

difficulties in initiating sex. Under these circumstances, even the women's sexual desire is intact, the sexual relationships will deteriorate (Horton, 1991; Schain, 1990).

For some cases, the decrease in the frequency of intercourse may not be due to the negative response of the partners. Partners may be so considerate that they are afraid of upsetting the patients, or feel guilty to ask for sex, assuming the women are sick. They are likely to forgo any sexual activity (Lambs, 1995). Cochran et al. (1989) noted that one third of 14 husbands of the disease group were concerned about physically hurting their wives during intercourse.

Studies on Chinese Samples

All the above studies were on the sexual outcome of EuroAmerican women with gynecological cancer. There are only a few studies in this area in Chinese women. Tang, Siu, Lai, and Chung (1996) reviewed the few available studies on Chinese women with cancer and found that psychosexual sequelae of cancer were similar to the corresponding western studies. Chinese women also reported deterioration in their sexual functioning, including decreased sexual activities, interest, libido, and satisfaction after the diagnosis (Ngan, Tang, & Lau, 1984).

Ngan and Tang (1984) studied the needs and emotional states in twenty-one Chinese women with carcinoma of ovary. Semistructured interview was employed. Seven of this patient group, after recognising their diagnosis, felt fear and anxiety. One of them was depressed and this depression lasted for 3 months from diagnosis. On the other hand, those who were not informed of their diagnosis felt relieved and

happy after the operation. They believed in 'fate" and were happy to live each day that 'fate' gave them. This study, however, did not examine the sexual functioning of Chinese patients after the treatment.

O'Hoy and Tang (1985) studied sexual function of 103 Chinese patients after treatment for carcinoma of the cervix. They suggested that culture is a factor and significantly affects factor to influence the sexual adjustment of patients. Three groups of patients who were treated by irradiation, surgery, and the combination of these two methods, were interviewed about their sexual functioning. They concluded that radiation therapy might be a better form of treatment. Patients who underwent operation were more reluctant to resume sexual intercourse because of cultural beliefs and misinformation regarding the relationship among sex, surgery and cancer. Most of the patients thought that sex would worsen the disease, cause recurrence of cancer, or affect wound healing. Some thought that the disease was contagious so that they should abstain from all sexual activities.

Although those who received radiation therapy had greater physical problems than the surgical group, the former resumed sexual activity earlier than those of the surgical groups. The majority of the irradiated patients complained of dyspareunia and lack of lubrication. Only one-third of the operated group had similar complaints. Patients who underwent the operation were concerned about the removal of sexual organs which were responsible for sexual functioning, and believed that they could not have sexual life again. Under the influence of Chinese folk belief, they believed that prolonged rest was essential after surgery in order to

promote wound healing and restore body integrity. Therefore, the sexual adjustment of women in the operated group was more impaired than those in the irradiated group.

Ngan and Tang (1988) performed a study on the sexual functioning of Chinese women with carcinoma of the cervix. The result did not support that radiation therapy was a better treatment modality for patients regarding sexual adjustment. Twenty out of 99 patients (20.2%) became sexually inactive after treatment. Seventy-nine out of 99 patients were sexually active after treatment, and 60% of those were below the age of 45 years. About thirty-two percent of patients reported that they had sexual problems, including dyspareunia, lack of lubrication, the feeling of an 'altered vagina' and 'physical weakness'. About twenty per cent of the treated patients refrained from sexual intercourse. Their reasons were: they were 'too old' to resume sex, their disease was contagious, and one patient's husband refused to have sex with her. In addition, for those who remained sexually active, the degree of change of sexual functioning did not vary significantly between patients who were treated by radiation therapy, by surgery, or by a combined approach.

Ngan, Tang, and Lau (1994) carried out a pre-treatment investigation on the psychological states on Chinese with gynecological cancer. The emotional disturbances and sexual disruption of women with cancer existed already before treatment. About fifty-eight percent of married couples stopped having sex and 20% had decreased sexual activity. Various psychological responses included reduction

in self-esteem (25%), neurotic symptoms (43.5%), and anxiety symptoms (20.9%), and depression (13%).

Criticism of the Chinese Studies

Research on Chinese subjects' sexual and psychosocial outcome of the diagnosis and the treatment for gynecological malignancies has similar methodological problems with the Western studies such as incomplete data, patient selection, various cancer sites and treatment modalities (Weijmar Schultz et al., 1992). Four of specific weaknesses are discussed below.

(1) Rarely Use Objective Measuring Instrument Most of the studies did not use standardized questionnaires. For instance, Ngan et al. (1994) adopted self-constructed questionnaires. The reliability and validity of these instruments would be needed to be tested and verified.

(2) Absence of Control Group All of the studies had no control group to validate the findings. It is uncertain whether the sexual dysfunction is due to the effects of gynecologic cancer, the aftermath of treatment or both of them. The disruption of sexual functioning may be the effect of the operation rather than the cancer itself. The sexual dysfunction may have already existed in the normal, healthy woman population.

(3) Absence of Pre-Post-Treatment Assessment The weaknesses of retrospective studies have been mentioned before. For instance, the responses from retrospective studies may be distorted by memory biases of the patients. A prospective study

would be more suitable for exploring the differences between the pre- and post-treatment of women's sexual functioning.

(4) Absence of Longitudinal Studies All of the Chinese studies were cross-sectional investigation. Patients were interviewed once and no follow up assessment to examine the changes in sexual functioning with time were done. Different treatment modalities may have various degrees and times of impact, for example, a delayed impact of the radiation therapy on the sexual functioning of women was found (Schover et al., 1989). In other words, some effects of diseases or treatment may not be apparent shortly after the operation. Therefore, a longitudinal study to examine the long-term changes among women with cancer would be preferable.

Objective of the study

The present study was a controlled, prospective, longitudinal investigation on the psychosexual functioning of Chinese patients with gynecological malignancies. A comprehensive model (Weijmar Schultz et al., 1991) was adopted throughout the study. The model involved: (i) physical factors that represented the physical capacity of women, including signs and symptoms of diseases and physical changes after treatment; (ii) psychological variables that encompassed emotional disturbances, body image, gender identity, and myths and misinformation; and (iii) social variable that referred to the social support from their partners. Sexual functioning of women was assessed with regard to sexual behavior frequencies such as intercourse, kissing, and caressing, and sexual fantasies (Figure 2).

In order to avoid the weaknesses in previous Chinese studies, two groups of subjects were selected. One group comprised women with non-malignant gynecological diseases, involving fribroid, endometriosis, menorrhagic, and uterine prolapse. The second group comprised women with gynecological cancer. Both groups received surgical intervention of their gynocological conditions. This was a longitudinal study. The psychosexual functioning of Chinese women was assessed at different time intervals: up to 1 month before surgery (pre-) , 4-8 weeks after the surgery (post-), and 1-year follow up assessments.

The purposes of this study were:

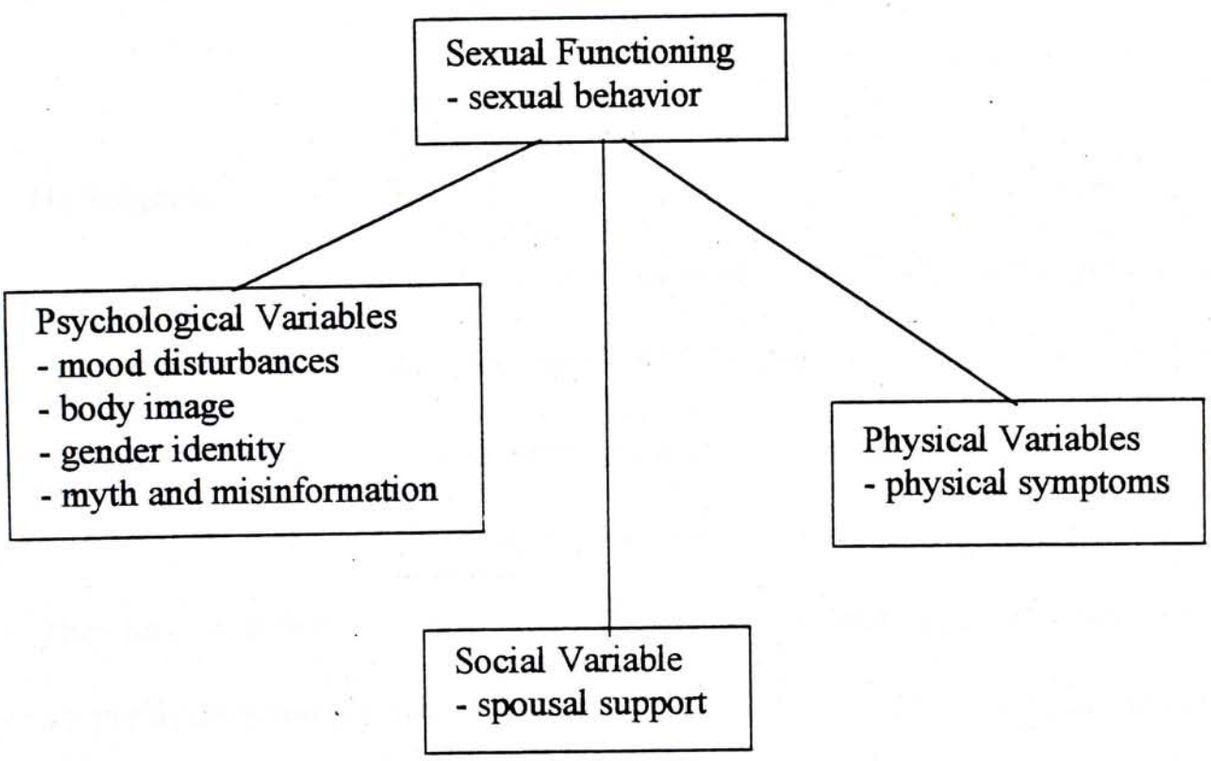
(1) to identify any group differences on psychosexual functioning

As the cancer group has had a life-threatening condition, it was hypothesized that (a) women with cancer had more physical and psychological symptoms than the benign group; (b) participants in the cancer group had higher levels of body image dissatisfaction than the benign group; and (c) the sexual adjustment of non-malignant group was better than that of cancer one, for example, earlier resumption of sexual activity and fewer sexual problems.

(2) to analyze the time effect on psychosexual functioning of hysterectomized women. The hypotheses were: (a) the post-treatment and follow-up levels of both physical symptoms and emotional disturbances were lower than at the pre-treatment stage; (b) the post-operation level of body image dissatisfaction elevated after the destructive operation; and (c) the frequency of sexual activity of both groups (cancer and benign groups) decreased after receiving the operation.

Figure 2.

A Modified Integrated Model of Sexual Functioning



(3) with respect to the psychosexual adjustment of women after the operation, this study was (a) to explore the relationships between the resumption of sexual activity of women and other three aspects of functioning, they were, physical, psychological and social; and (b) to identify significant predictors of psychosexual adjustment among participants.

METHOD

(1) Subjects

A total of one hundred and six Chinese women participated voluntarily in the study between May 1994 to February 1997. Among these women, fifty-seven women were diagnosed with gynecological cancer (named Cancer Group), while the remaining 49 suffered from benign gynecological diseases (named Benign Group). They have attended the Prince of Wales Hospital for either radical hysterectomy or simple hysterectomy between May 1994 and February 1996. Each participant met individually with a female research assistant for a psychosexual interview. They were informed that their responses would provide information about the effects of their diseases on a woman's psychological and sexual function. The survey consisted of three stages: pre- and post-operation, and 1-year follow up. They would be interviewed and be required to complete one set of questionnaire at each stage of assessment. Each woman was assured that the interview and questionnaire data would remain strictly confidential and restrict to the research purpose. Their

participation was voluntary and would not affect their treatment in any way. In addition, they could withdraw from the study at any time if they wished. After explained thoroughly about the study and their rights, participants' consents were obtained. Table 1 summarized the demographic information of our subjects.

Cancer Group The mean age was 44.1 years (SD=5.9). They were all married. One of them was illiterate. Fifteen (26.3%) had not yet completed primary education, 17 (29.8%) completed primary education and 14 (24.6%) completed Form 3. Twenty-five women worked outside their homes, and 32 were housewives. Their spouses' mean age was 48.04 years (SD=10.81). The mean length of marriage was 21.14 years (SD=9.55). All but two had at least one child. The interval between the confirmation of diagnosis and the pre-surgery survey ranged from 1 week to 1 year. Disease sites included cervix (n=27, 61.4%), endometrium (n=8, 18.2%), ovary (n=5, 11.4%), and vagina (n=1, 2.3%) (see Table 2). All women received treatment consisting of surgery to remove their malignant tumors. Seven of them subsequently received radiotherapy and 9 had chemotherapy.

Benign Group The mean age of women in the Benign Group was 44.06 years (SD=5.88). None of them were illiterate. About one-third completed Form 3. Nineteen of them (38.8%) worked outside and 30 (61.2%) were housewives. The mean age of their spouses was 48 years (SD=8.57). The mean length of their marriage was 19.57 years (SD=7.09). Two of them did not have children. Nearly

Table 1. Demographic Information of Subjects

Variables	Cancer Group (n=57) frequency(%)	Benign Group (n=49) frequency(%)	t-value/$\chi 2$
Age [mean (SD)]	43.82(8.27)	44.06(5.88)	-.17
Education of Patients			-1.06
Illiterate	1 (1.8%)	0 (0%)	
Primary Education (Incomplete)	15 (26.3%)	9 (18.4%)	
Primary 6	17 (29.8%)	14 (28.6%)	
Form 3	14 (24.6%)	16 (32.7%)	
Form 5	8 (14.0%)	9 (18.4%)	
Matriculated	1 (1.8%)	0 (0%)	
Post-Secondary	1 (1.8%)	1 (2%)	
Employment of Patients			.28
Employed	25 (43.9%)	19 (38.8%)	
Housewife	32 (56.1%)	30 (61.2%)	
Age of Spouses [mean(SD)]	48.04(10.81)	48.00(8.57)	.02
Education of Spouses			.55
Illiterate	0 (0%)	0 (0%)	
Primary Education (Incomplete)	12 (21.1%)	8 (16.7%)	
Primary 6	19 (33.3%)	13 (27.1%)	
Form 3	12 (21.1%)	14 (29.2%)	
Form 5	3 (5.3%)	9 (18.8%)	
Matriculated	1 (1.8%)	1 (2.1%)	
Post-Secondary	3 (5.3%)	3 (6.3%)	
Employment of Spouses			.27
Employed	52 (91.2%)	46 (93.9%)	
Unemployed	5 (8.8%)	3 (6.1%)	
Length of Marriage [mean (SD)]	21.14(9.55)	19.57(7.09)	.95
No. of Children			
[mean (SD)]	2.83 (1.53)	2.31 (1.29)	1.87
0	2 (3.5%)	2 (4.1%)	
1	9 (15.8%)	8 (16.3%)	
2	16 (28.1%)	23 (46.9%)	
3	10 (17.5%)	11 (22.4%)	
4	15 (26.3%)	2 (4.1%)	
5	1 (1.8%)	1 (2.0%)	
6	3 (5.3%)	1 (2.0%)	
7	1 (1.8%)	1 (2.0%)	

Table 2. Distribution of Cancer Sites in Cancer Group

Name	Frequency (Percentage)
Cervical Cancer	27 (61.4%)
Ovarian Cancer	5 (11.4%)
Endometrium Cancer	8 (18.2%)
Vaginal Cancer	1 (2.3%)
Plasia	3 (6.8%)

Table 3. Distribution of Gynecological Diseases in Benign Group

Name	Frequency (Percentage)
Ovarian Tumor	5 (10.2%)
Endometriosis	4 (8.2%)
Uterine Fibroid	26 (53.1%)
Uterine Prolapsed	3 (6.1%)
Hyperplasia	3 (6.1%)
Menorrhagia	8 (16.3%)

half of them (n=23, 46.9%) had two children. The interval between the diagnosis and the pre-operation interview was ranged from 1 week to 10 years. They suffered from benign gynecological diseases, including ovarian tumor (n=5, 10.2%), endometriosis (n=4, 8.2%), uterine fibroid (n=26, 53.1%), uterine prolapse (n=3, 6.1%), hyperplasia (n=3, 6.1%), and menorrhagia (n=8, 16.3%) (see Table 3).

2) Instruments

Demographic Information (Appendix A) such as patients' and their spouses' age, educational level, occupation, years of marriage, and number of children were collected.

The Physical Symptom Checklist (Appendix B) A self-constructed 15-item checklist of physical symptoms was used to ask subjects to indicate whether they had any of the following symptoms: physical discomfort, fatigue, nausea, vomiting, loss of appetite, pain, abdominal discomfort, and vaginal discharge. A 4-point scale was to assess the severity of each symptom from 'No' as no such symptom to 'Severe' as severely suffering from that symptom.

The Eysenck Personality Questionnaire (Neuroticism Scale) -- A short revised version (ERQ-SR) (Appendix C) It consisted of 12 items with 'Yes' or 'No' responses to examine the patients' neuroticism. Neuroticism refers to subjects' proneness to be worry, anxious, moody, over-react to stress, difficult to calm down, and the like. Cronbach's alpha of the Neuroticism Scale of the Chinese version of

EPQ-SR reported from males and females were .85 and .82 respectively (Eysenck, & Chan, 1982).

Derogatis Sexual functioning Inventory (DSFI) (Appendix D) is a multidimensional tool to assess ten domains related to sexual functioning, and is developed by Derogatis (Derogatis, 1979). The ten domains separately measure a distinct domain essential to sexual behavior. They are: Information, Experience, Drive, Attitudes (Liberalism Vs Conservatism), Psychological Symptoms, Affects (Positive Vs Negative), Gender Role (Masculinity Vs Femininity), Fantasy, Body Image, and Satisfaction. These ten scales' Cronbach's alpha were .56, .97, .60, .81, .93, .94, .84, .76, .82, .58, and .71, respectively. The test-retest reliability estimates for all ten domains were: $r > .90$ for subscales of experience, attitude, symptoms, and fantasy; $r > .80$ for affect and gender role subscales; $r > .77$ for drive subscale (Derogatis, 1979).

The DSFI was able to discriminate between individuals with sexual disorders and those with normal sexual functioning (Derogatis & Melisaratos, 1979). Factor analysis results also showed that the internal structure of the DSFI confirmed to the hypothesized underlying domains of sexual behavior. The Chinese version of the DFSI was internally consistent, and its subscales also demonstrated good concurrent validity with measures for self-esteem, depression, and psychological distress (Tang, Lai, & Chung, 1995).

The present study included the subscales of the Information, Drive, Sexual Satisfaction, Sexual Fantasy, Feminine Gender Role, Body Image Dissatisfaction,

and Psychological Symptoms subscales. The Gender Role (Masculinity) was not used as all the subjects were female in this study. The subscale of Experience was excluded since it was too explicit for Chinese subjects. In addition, the 'past experience' of subjects (one of the dimensions of psychological variables in the above model) was examined. The affect sub-scale was replaced by the Neuroticism Scale of the Eysenck Personality Inventory. In addition, the sexual attitudes had little influence from the diseases so that the Attitude subscale was not used.

Chinese Folk Belief Questionnaire (Appendix E) has 6 items (Wen, 1995) which are the usual sexual belief in Chinese societies, for example, too much masturbation and unrestricted sexual activity are harm to one's health. These items were used to assess the traditional sexual myths or misinformation of women had. Subjects responded with 'Yes' or 'No' answers.

Social Support Scale (Appendix F) is a 10-item scale from the Perceived Social Support subscales from the Family Scale (PSS-Fa) to examine the relationship with her husband (Procidano & Heller, 1983). The PSS-Fa was internally consistent and measured valid constructs, for example, social network and willingness to disclose. This scale was inversely related to distress and psychological pathology, and was not affected by either positive or negative emotional states such as depression and anxiety. A 4-point scale was to assess the communication between the couple and the degree of initimacy from '1' as 'least disagree' to '4' as 'most agree' for each item.

(3) Procedure

This was a between-subjects and within-subject study. Two subject groups were interviewed and were requested to complete batteries of paper-and-pencil questionnaires before, 1-8 weeks and at least 1 year after the operation. The pre-treatment questionnaires included Physical Symptom Checklist, ERQ-SR, seven subscales from DSFI, Chinese Folk Belief Questionnaire, and Social Support Scale. Questionnaire for the post-treatment assessment excluded sexual information and gender identity subscales of DSFI, and the Chinese Folk Belief since these three variables were less likely to change in overtime. At 1-year follow up assessment, other than the packages of pre-treatment questionnaires, items on time taken to resume sexual relations and any existing sexual problems were added as well.

Each subject was interviewed and the purpose of the study, the handling of data, three stages of assessments and their rights to withdraw were explained to them. The consent for participation were obtained before a female research assistant proceeded semi-structured interviews. There was no patient who was approached refused to participate in this study. The interviewer asked the participants about their demographic information and the severity of physical symptoms. Packages of questionnaires were given to them. If they had difficulties in reading the items, the research assistant would orally administer them.

Each interview and survey lasted for about one and a half hours. The pre-surgery study took place around one week to one day before the surgery and was administered during their hospitalization. The post-surgery study was conducted

from one to eight weeks after the operation. If participants have been discharged from the hospital, they would be contacted and interviewed by phone. Additionally, packages of questionnaires would be mailed to them. Subjects returned them in the provided stamped envelope. At 1 year follow-up after the operation, these participants were contacted again by telephone and were invited to a follow-up interview either by telephone, mail, or face-to-face about their psychosexual adjustment. Totally, 17 of them could not be reached because they had moved. Three of them were died. Among those contacted, thirteen women declined. Eight of them were reluctant to discuss about sex and complained that the items were too explicit. Three explained that they were too busy and two were too tired. Finally, 36 women in the Cancer group and 37 in the Benign group were interviewed in the 1 year follow-up study.

RESULTS

Group Differences on Demographic Variables

Independent T-tests were conducted to compare the two groups (Cancer group and Benign group) on demographic variables. As shown in Table 1, results revealed that the Cancer group was similar to the Benign group in terms of the mean ages of subjects and spouses, educational level, employment status, the mean length of marriage, and the number of children ($p > .05$).

Attrition Analysis

In this study, 106 women had participated in the pre- and post-operative study, and 73 women in the follow-up survey. Our attrition rate was 31.1% at 1-year follow-up. Attrition analyses were intended to determine whether those women contacted at least 1year after the operation differed from those who were absent from the follow-up study. A dichotomous variable was created, with those subjects who were not included in the follow-up study being assigned a value of 2, and those subjects with complete data at all three stages of study being assigned a value of 1. Independent T-tests were conducted to compare demographic background and psychosexual characteristics between the completers and the dropouts. Results revealed that there were significant differences between these two groups on the Pre-surgery Sexual Fantasy, $t(103) = -3.67$, $p < .01$, and Post-surgery Psychological Symptom, $t(102) = -1.10$, $p < .05$. These indicated that the dropouts had more sexual fantasy in the pre-operative stage and more psychological symptoms in the post-operative study than the completers. Hence, the results of the follow-up study should be interpreted with this in mind. The occurrence of sexual fantasy and the severity of psychological disturbances might be underestimated for those who were interviewed at the follow-up.

Internal Reliability of the Variables

Table 4 presents the internal reliability, means, and standard deviations of the variables for the pre- and post-surgery, and follow-up study. Cronbach's alpha of Eysenck Personality Questionnaire (Neuroticism Scale) (EPQ), Folk Belief

Table 4. The Internal Reliability, Means and Standard Deviations of the Variables at Pre- and Post-Surgery and Follow-Up Survey

Variables	Mean (SD) Pre-	Post-	FU	Alpha Pre-	Post-	FU
EPQ	5.16(3.35)	4.31(3.61)	5.01(3.94)	.81	.86	.88
Gender Role (Femininity)	21.49(5.98)	——	23.72(6.39)	.87	——	.81
Sexual Information	15.71(21.92)	——	13.50(3.08)	.95	-----	.60
Psychological Symptom	30.18(22.49)	18.60(18.68)	22.68(17.99)	.95	.96	.94
Body Dissatisfaction	31.45(6.12)	32.64(5.67)	31.45(5.16)	.69	.67	.62
Sexual Drive	10.63(5.74)	7.02(5.32)	7.79(6.44)	.65	.61	.68
Sexual Satisfaction	7.82(2.05)	7.68(2.16)	7.62(1.95)	.69	.71	.61
Sexual Fantasy	1.24(1.37)	1.36(1.51)	.81(1.30)	.60	.62	.64
Folk Belief	8.16(1.57)	-----	8.05(2.11)	.59	-----	.80
Spousal Support	21.08(3.94)	21.08(3.71)	21.94(5.24)	.88	.91	.71

Note: EPQ = Eysenck Personality Questionnaire (Neuroticism Scale)

Questionnaire and Spousal Support Scale for the three stages of survey ranged from .59 to .91. As for the sub-scales of DSFI, the Cronbach's alpha were in the range of .60 to .95 for the pre-surgery survey, .61 to .96 for the post-surgery survey, and .61 to .94 for the follow-up survey. Overall, the internal consistencies of various scales were satisfactory, except the Pre-operative Folk Belief measure (alpha = .59).

Psychosexual Functioning of Participants

(A) Group Differences on Psychosexual Characteristics

Independent t-tests were performed to identify any group differences on all psychosexual variables. Table 5 shows the two groups' means and standard deviations of all psychosexual variables at the three time points. As seen in Table 5, women in the Cancer group had significantly lower levels of sexual drive at pre-surgery and follow-up, $t(82)=-2.17$, $t(62)=-2.56$, respectively, $ps<.01$; as well as having higher levels of sexual fantasy at the pre- and post-operative periods, $t(103)=2.10$, $p<.01$; $t(104)=2.59$, $p<.001$. The Benign group, on the other hand, had a higher level of body dissatisfaction than the Cancer group at the pre-operative stage, $t(104)=-2.10$, $p<.05$.

(B) Effect of Time and Group

To evaluate the effects of both group and time on DSFI subscale scores, EPQ, Spousal Support and Folk Belief, a series of 2 (group: Cancer group and Benign group) x 3 (Time: Pre- and Post-Surgery, and Follow-up) repeated Measures of MANOVA was performed. Table 6 shows the means and standard

Table 5. Results of Paired T-Test from Cancer Group to Benign Group

Variables	Cancer Group Mean	SD	Benign Group Mean	SD	t-values
Pre-Surgery Variables:					
Physical Symptoms	1.48	2.00	1.12	2.02	.72
EPQ	5.02	3.55	5.33	3.13	-.47
Femininity	20.68	6.43	22.45	5.31	-1.50
Psychological Symptoms	30.16	25.28	30.20	19.07	-.01
Information	13.09	2.83	18.83	32.21	-1.33
Drive	9.36	4.70	12.03	6.47	-2.17*
Satisfaction	7.93	2.00	7.69	2.11	.58
Fantasy	1.49	1.57	.94	1.02	2.10*
Body Image	30.32	5.69	32.78	6.39	-2.10*
Folk Belief	8.06	1.39	8.20	1.64	-.29
Spousal Support	20.81	4.26	21.17	3.87	-.31
Post-Surgery Variables:					
Physical Symptoms	3.61	2.84	2.96	3.65	.75
EPQ	4.75	3.96	3.80	3.12	1.37
Psychological Symptoms	19.76	19.57	17.29	17.73	.67
Drive	6.92	4.74	7.12	5.94	-.18
Satisfaction	7.65	2.11	7.71	2.25	-.14
Fantasy	1.70	1.69	.96	1.17	2.59**
Body Image	32.27	5.71	33.06	5.66	-.71
Spousal Support	20.71	3.60	21.21	3.78	-.48
Follow-up Variables:					
Physical Symptoms	2.58	3.37	3.62	5.32	-.99
EPQ	5.75	3.56	4.30	4.20	1.59
Psychological Symptoms	24.83	18.10	20.59	17.89	1.01
Femininity	23.29	7.16	24.05	5.82	-.48
Information	13.19	3.14	13.74	3.06	-.67
Drive	5.96	5.77	9.95	6.62	-2.56**
Satisfaction	7.58	1.79	7.67	2.11	-.19
Fantasy	.78	1.29	.84	1.32	-.20
Body Image	30.97	5.71	31.92	4.60	-.78
Folk Belief	8.2	2.16	7.92	2.10	.57
Spousal Support	22.59	5.42	21.35	5.06	.99

Note: EPQ= Eysenck Personality Questionnaire (Neuroticism)
* p<.05 **p<.01 ***p<.001

Table 6 . Results of 2 x 3 MANOVA on Psychosexual Features

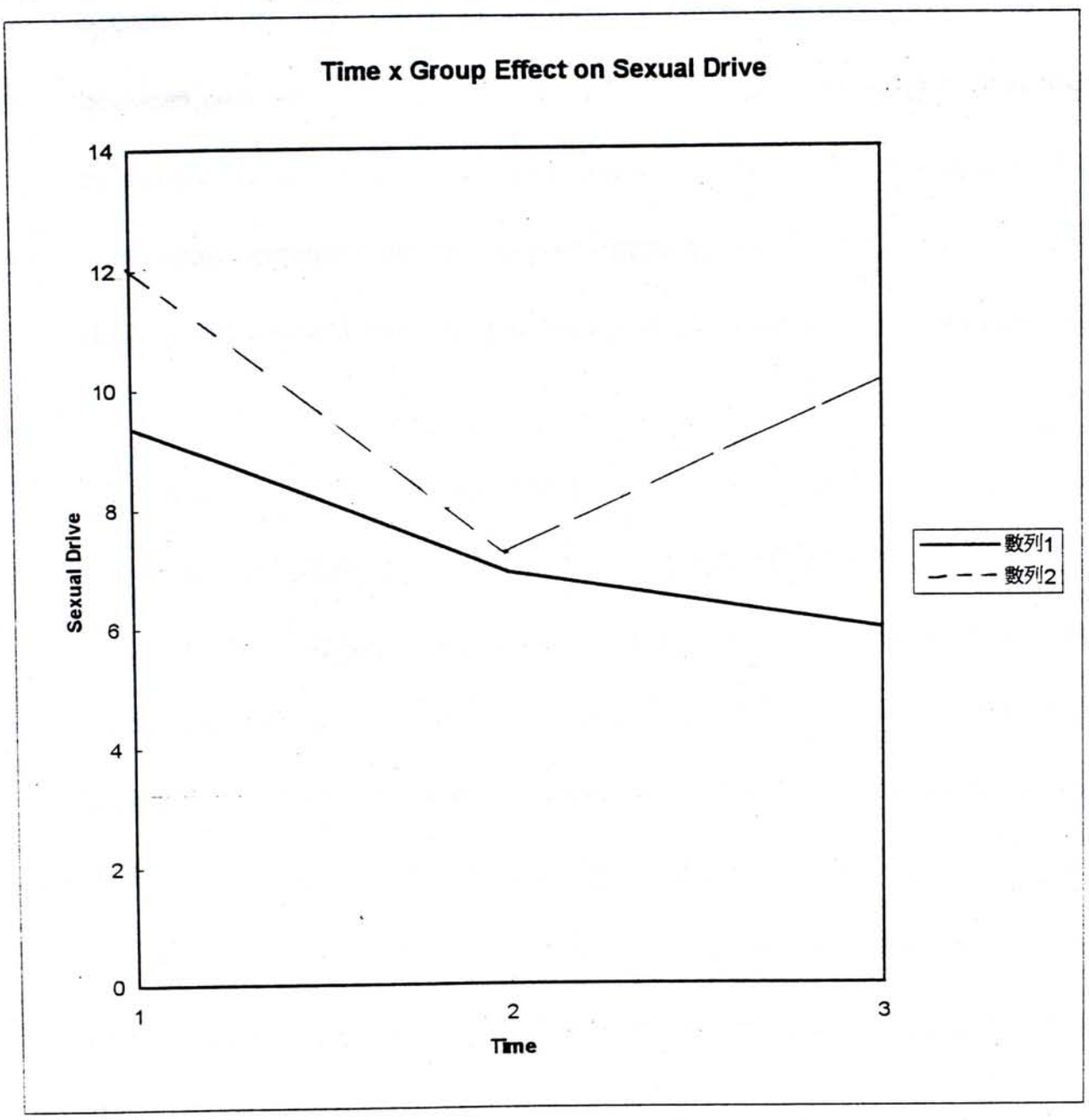
Variables	Pre- Mean (SD)	Post- Mean (SD)	Follow-up Mean (SD)	Group x Time (F-value)	Time Effects (F-value)	Main Effects on Time (F-value) Pre vs Post	Pre vs FU	Post vs FU
SYM	1.24 (2.01)	3.17 (3.41)	3.11 (3.11)	2.34	10.20***	21.18***	10.12**	.33
PSY	30.18 (22.49)	18.60 (18.68)	22.68 (17.99)	1.48	10.32***	18.34***	1.55	7.58**
BOD	31.45 (6.12)	32.64 (5.67)	31.45 (5.16)	2.17	6.68**	5.93**	.45	10.01**
DRI	10.63 (5.74)	7.02 (5.32)	7.79 (6.44)	3.70*	15.83***	24.91***	16.33***	.31
SPOUSE	21.08 (3.94)	21.08 (3.71)	21.94 (5.24)	2.01	1.84	.02	2.02	1.71
EPQ	5.16 (3.35)	4.31 (3.61)	5.01 (3.94)	1.90	2.32	4.35*	.05	2.44
INF	15.71 (21.92)	NA	13.50 (3.08)	.79	.42	NA	.42	NA
GEN_FEM	21.49 (5.98)	NA	23.72 (6.39)	3.17	6.30*	NA	6.30*	NA
SAT	7.82 (2.05)	7.68 (2.16)	7.62 (1.95)	.76	.47	.34	.80	.26
FAN	1.24 (1.37)	1.36 (1.51)	.81 (1.30)	.42	1.58	1.54	1.08	3.18
FOLK	8.16 (1.57)	NA	8.05 (2.11)	.09	2.10	NA	2.10	NA

Note: SYM = Physical Symptoms; PSY = Psychological Symptoms; BOD = Body Image; DRI = Drive; SPOUSE = Spousal Support; EPQ = Eysenck Personality Questionnaire (Neuroticism Scale); INF = Information; GEN_FEM = Gender Role (Femininity); SAT = Satisfaction; FAN = Fantasy; FOLK = Folk Belief.
*p<.05 **p<.01 ***p<.001

deviations of various scales' scores for the two groups, with F-values for main and interaction effects. Results showed significant 2-way group x time interaction effect on Sexual Drive, $F(2,96)=3.70, p<.05$. As shown in Figure 3, the Cancer group had a steady decline on sexual drive; whereas the Benign group's sexual drive decreased sharply shortly after the surgery, but increased rapidly at 1-year follow-up, although still not returning to the pre-operation level. In general, the levels of sexual drive of the Benign group were higher than the Cancer group.

The above MANOVA analyses revealed significant time effects for the following psychosexual variables: Physical Symptom, $F(2,55)=10.20$, $p<.001$; Psychological Symptom, $F(2,69)=10.32$, $p<.001$; Body Dissatisfaction, $F(2,69)=6.68$, $p<.01$; Sexual Drive, $F(2,69)=15.83$, $p<.001$; and Femininity, $F(1,62)=6.30$, $p<.05$. Additional analyses were performed to contrast these variables at the three different time points. Results indicated that subjects had more physical symptoms from pre-operation to post-operation, $F(1,57)=21.18$, $p<.001$; and maintained at follow-up, $F(1,57)=10.12$, $p<.001$; but no significant change from post-operation to follow-up, $F(1,57)=.33$, $p>.05$. Women experienced fewer psychological symptoms after the operation, $F(1,71)=18.34$, $p<.001$; but had psychological symptoms increased at follow-up, $F(1,71)=7.58$, $p<.01$. For Body Image Dissatisfaction, women were more dissatisfied with their body immediately after the surgery, $F(1,71)=5.93$, $p<.01$; were better (that is, less body dissatisfied) at follow-up, $F(1,71)=10.01$, $p<.01$. There was no difference between pre-surgery and follow-up, $F(1,71)=.45$, $p>.05$. For Sexual Drive, the frequencies of sexual

Figure 3



Time 1 = Pre-Operation
Time 2 = Post-Operation
Time 3 = Follow-up Study

Series 1 = Benign Group
Series 2 = Cancer Group

activities of women decreased after the surgery, $F(1,71)=24.91$, $p< .001$. Their sexual drive level slightly improved at follow-up, but was still lower than their pre-operative level, $F(1,71)=16.33$, $p< .001$, and there was no significant difference between post-surgery and follow-up, $F(1,71)=.31$, $p> .05$. Apart from the above mentioned variables showing significant time effects, Neuroticism also showed a significant decrease from pre- to post-operation, $F(1,71)=4.35$, $p<.05$, however, it did not show significant changes from post-operation to follow-up (see Table 6).

Follow-up Psychosexual Adjustment

(A) Group Differences on Psychosexual Adjustment Variables at 1-year Follow-up

Table 7 presents the psychosexual adjustment of women in the Cancer group and the Benign group. For the Cancer group, 27(77.1%) women resumed sexual intercourse, 23 (67.6%) kissing and petting, and 5 (14.7%) sexual fantasies at 1-year follow-up. On the other hand, the percentages of women with benign gynecological disease resuming the three corresponding sexual activities were 91.2%, 84.8%, and 9.1%. However, $\chi 2$ showed no significant group differences in the resumption of their sexual behavior (all ps > .05).

Independent t-tests were also conducted to find any group differences on the time needed to resume these activities. In general, the Cancer group needed longer to resume sexual activities than their counterparts, although the differences were statistically insignificant ($p> .05$). For the Cancer group, the time needed ranged from 1 month to 10 months to resume sexual activities, 1 month to 8 months to

Table 7. Group Differences on Psychosexual Adjustment Variables

Variables	Cancer Group Frequency (%)	Benign Group Frequency(%)	t-value/$\chi 2$
Resumption of			
1) Sexual Intercourse			.54
Yes	27(77.1%)	31 (91.2%)	
No	8 (22.9%)	3 (8.8%)	
2) Kissing & Petting			.73
Yes	23 (67.6%)	28 (84.8%)	
No	11 (32.4%)	5 (15.2%)	
3) Fantasy			50
Yes	5 (14.7%)	3 (9.1%)	
No	29 (85.3%)	30 (91.9%)	
Duration needed to resume			
1) sexual intercourse [mean(SD) in wks]	17.07 (10.37)	13.10 (8.45)	.49
1 month	1 (3.7%)	8 (25.8%)	
2 months	4 (14.8%)	6 (19.4%)	
3 months	8 (29.6%)	6 (19.4%)	
4 months	5 (18.5%)		
6 months	4 (14.8%)	11 (35.5%)	
10 months	5 (18.5%)		
2) kissing & petting [mean(SD)]	10.43 (7.75)	8.34 (6.78)	-.01
1 month	7 (30.4%)	15 (45.5%)	
2 months	4 (17.4%)	2 (7.1%)	
3 months	7 (30.4%)	8 (28.6%)	
4 months	2 (8.7%)		
6 months	2 (8.7%)	3 (10.7%)	
8 months	1 (4.3%)		
3) fantasy [mean (SD)]	14 (6.93)	6.67 (4.62)	1.39
1 month		2 (66.7%)	
2 months	1 (20%)		
3 months	3 (60%)	1 (33.3%)	
6 months	1 (20%)		
Sexual Problems [mean (SD)]	2.28 (1.75)	1.63 (1.35)	1.67*
1) general discomfort	12 (18.2%)	11 (19.3%)	.68
2) dysparenia	8 (12.1%)	8 (14.0%)	.19
3) vaginal discomfort	6 (9.1%)	8 (14.0%)	.04
4) lack of vaginal lubrication	14 (21.2%)	13 (22.8%)	.81
5) vaginal tenderness	4 (6.1%)	4 (7.0%)	.08
6) vaginal stenosis	2 (3.0%)	0 (0%)	2.49
7) bleeding	3 (4.5%)	1 (1.8%)	1.52
8) spouse's dissatisfaction	8 (12.1%)	7 (12.3%)	.51
9) no/less interest in sex	9 (13.6%)	5 (8.8%)	2.60

Note. *p<.05 **p<.01 ***p<.001

resume kissing and petting, and 2 to 6 months to have sexual fantasies. The Benign group resumed sexual intercourse and kissing and petting within 6 months' time, and sexual fantasies in 3 months.

Table 7 also presents a list of sexual problems as reported by the interviewed women. The commonest problem they had was "lack of vaginal lubrication". Fourteen (21.2%) women from the Cancer group and 13 (22.8%) from the Benign group reported to have this problem. The second commonest problem was "general physical discomfort", which was reported by 12(18.2%) and 11 (19.3%) women from the Cancer and the Benign group, respectively. Independent t-test was conducted to compare group difference on the mean number of sexual problems. The result revealed that the Cancer group had significantly more sexual problems than its counterpart, $t(62)=1.67$, $p<.05$.

(B) Correlation between Psychosexual Adjustment at 1-year Follow-up

Resumption of Sexual Activities

Since the psychosexual adjustment variables of resumption of sexual activities were dichotomous (Yes=1, No=0), nonparametric measures of correlation (contingency coefficient) were performed to find their relationship with other psychosexual variables. As shown in Table 8, results indicated that the resumption of sexual intercourse was significantly correlated with the following variables: Age ($cc=.66$, $p<.001$), Follow-up Sexual Drive ($cc=63$, $p< .05$), and Follow-up Spousal Support ($cc=.58$, $p< .05$). Women, who were younger, had higher sexual drive and

Table 8. Follow-up Psychosexual Functioning and Their relationships with Psychosexual Features on Pre- & Post- Surgery and Follow-up Studies

Variables	Resumption of (contingent coefficient)			Time to resume (Correlation, rs)		
	S.I. (n=58)	K.P. (n=51)	Fan (n=8)	S.I. (n=58)	K.P. (n=51)	Fan (n=8)
Pre-Surgery Variables:						
Age	.66***	.56	.61*	.07	.14	-.26
Physical Symptom	.27	.37	.37	-.22	-.22	.01
EPQ	.40	.39	.50	-.15	-.11	-.17
Gender Role (Femininity)	.48	.52	.44	-.16	-.17	.23
Psychological Symptom	.56	.58	.63	-.01	-.02	-.12
Information	.36	.44	.29	-.02	-.35**	-.15
Drive	.57	.54	.53	-.42**	-.37**	-.21
Satisfaction	.34	.34	.31	-.03	-.06	.21
Fantasy	.21	.24	.40*	-.19	-.16	.84**
Body Dissatisfaction	.45	.50	.55	-.00	.07	-.31
Folk Belief	.25	.36	.25	.02	-.39**	.09
Spousal Support	.58	.59	.49	-.14	.16	-.59
Post-Surgery Variables:						
Physical Symptom	.48	.51	.48	-.13	-.20	-.34
EPQ	.41	.45	.49*	-.21	-.13	-.16
Psychological Symptom	.56	.57	.69***	-.08	-.08	-.34
Drive	.48	.50	.53	-.23*	-.27*	-.19
Satisfaction	.33	.23	.22	-.09	-.07	.08
Fantasy	.35	.27	.25	-.11	-.16	.73*
Body Dissatisfaction	.56	.44	.38	-.04	.01	.18
Spousal Support	.52	.46	.54	-.07	.19	.29
Follow-up Variables:						
Physical Symptom	.39	.37	.37	.05	-.17	.31
EPQ	.42	.44	.48	.09	.05	-.14
Gender Role (Femininity)	.57	.56	.52	-.06	-.18	-.05
Psychological Symptom	.65	.66	.65	.00	-.18	-.30
Information	.47	.51	.48	-.00	-.31*	.24
Drive	.63*	.64**	.55	-.40**	-.53***	.16
Satisfaction	.24	39	.27	-.22*	-.30*	.27
Fantasy	.24	.26	.46**	-.03	-.15	.84**
Body Dissatisfaction	.51	.50	.54	-.06	-.01	-.34
Folk Belief	.38	.44	.43	-.16	-.36**	-.19
Spousal Support	.58*	.51	.49	-.02	.27*	-.03

Note: EPQ = Eysenck Personality Questionnaire (Neuroticism Scale); S.I. = Sexual Intercourse; K.P. = Kissing and Petting; Fan=Sexual Fantasies.

*p<.05; **p<.01; ***p<.001

more spousal support, were more likely to resume sexual intercourse during the 1 year follow-up.

The resumption of kissing and petting was significantly correlated with Follow-up Sexual Drive (cc=.64, p< .01). Similarly, those who had a higher level of sexual drive at follow-up were likely to resume kissing and petting. The resumption of sexual fantasies was significantly correlated with Age (cc=.61, p< .05), Pre-operative Sexual Fantasy (cc=.40, p< .05), Post-operative Neuroticism (cc=.49, p< .05), Post-operative Psychological Symptom (cc=.69, p< .001), and Follow-up Sexual Fantasy (cc=.46, p< .01). Women, who were younger and had a higher level of sexual fantasy, would resume sexual fantasies at follow-up. In addition, those were more neurotic and more psychological distressed immediately after surgery were also more likely to fantasize at follow-up.

Time needed to resume sexual activities

Bivariate correlation was conducted to define the relationship of the time needed to resume sexual activities with psychosexual variables. As shown in Table 8, results revealed that the time needed to resume sexual intercourse was negatively correlated with Sexual Drive at all stages (r=-.42, p<.01; r=-.23, p<.05; r=-.40, p<.01, respectively) and Follow-up Sexual Satisfaction (r=-.22, p<.05). In other words, subjects who had higher levels of pre- and post-operative and follow-up sexual drive would resume sexual intercourse earlier.

The time needed to resume kissing and petting was negatively correlated with Pre-surgery and Follow-up Sexual Information, three stages of Sexual Drive, Pre-operative and Follow-up Folk Belief, but was positively correlated with Follow-up Spousal Support (rs ranged from -.53 to .27, all ps<.05). Women who had more accurate sexual information and a higher level of sexual drive would resume these two sexual activities earlier. Surprisingly, women who had more folk beliefs would also resume these behaviors earlier too. However, those who had more spousal support at follow-up took longer time to resume these activities.

The duration to resume sexual fantasy was consistently significantly correlated with Sexual Fantasy across the three stages of study (r=.84, p<.01; r=.73, p<.05; r=.84, p<.01, respectively). Women who had a higher level of sexual fantasy would need a longer period of time to have sexual fantasies.

(C) Predicting Psychosexual Adjustment at 1 Year Follow-up

Hierarchical Logistic Regression Analysis for the Resumption of Sexual Activities

One purpose of this study was to determine which, if any, of the psychosexual variables obtained at pre- and post-surgery and follow-up studies predicted psychosexual adjustment of subjects. Since the criterion, the resumption of sexual activity, is dichotomous, logistic regression analyses were used to find its best predictor. Hierarchical logistic regression analyses were used. The first step was to enter the variable Group into the model, with an attempt to detect the group's predicting effect on the dependent variables (the resumption of sexual activity). The

second step was to use stepwise logistic regression analysis to determine which variables would be most strongly associated with the resumption of sexual activity. The variables entered into the analyses were: Age, Pre- and Post-operative and Follow-up Variables of Physical Symptom, Neuroticism, Psychological Symptom, Gender Role-Femininity, Sexual Information, Sexual Drive, Sexual Satisfaction, Sexual Fantasy, Body Dissatisfaction, Folk Belief, and Spousal Support. Table 9 presents the results of hierarchical logistic regression analyses.

For the resumption of intercourse, the single variable of Group would only classify about 88% of the subjects correctly (model $\chi 2=3.51$, df=1, $p> .05$; logistic coefficient = -1.45, $p> .05$). With the addition of Age, the model would explain 94.12% of the subjects correctly (model $\chi 2=12.43$, df=1, $p<.001$; logistic coefficient = -.64, p=.53). That is, women who were older would be less likely to resume sexual intercourse.

For the resumption of kissing and petting, in the first model, the variable Group would classify about 81% of the subjects correctly (model $\chi 2=3.47$, df=1, $p<.06$; logistic coefficient = -1.74, $p>.05$). Followed by entering Age into the model, it accounted 90.91% of subjects correctly (model $\chi 2=9.83$, df=1, $p<.001$; logistic coefficient of Age = -.31, $p< .05$). Consistent to the results of the resumption of intercourse, women who were younger would be more probably to resume kissing and petting. Here, Age is the significant predictor for the resumption of kissing and petting.

Table 9. Hierarchical Logistic Regression Analysis on Follow-Up Sexual Functioning

Variables	Model $\chi 2$	df	p	GOF$\chi 2$	% age Predicted Correctly
(I) Resumption of Sexual Intercourse:					
Step 1					
Group	3.51	1	.06	34.00	88.24
Step 2					
Age	12.43	1	.001	9.08	94.12
(II) Resumption of Kissing and Petting:					
Step 1					
Group	3.47	1	.06	33.00	81.82
Step 2					
Age	9.83	1	.002	37.39	90.91
(III) Resumption of Sexual Fantasies:					
Step 1					
Group	.11	1	.73	33.00	84.85
Step 2					
Post-operative Drive	9.38	1	.002	23.34	90.91
Step 3					
Post-operative Drive, & Follow-up Folk Belief	13.62	2	.001	22.51	93.94

Note: First Step: Enter Group into the three Logistic Regression Models.
Second Step: Enter Age, Pre-operative variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Information, Gender Role (Femininity), Sexual Satisfaction, Sexual Fantasy, Folk Belief; Post-operative variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Satisfaction, Sexual Fantasy; Follow-up variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Information, Gender Role (Femininity), Sexual Satisfaction, Sexual Fantasy, Folk Belief.

In the last model on the resumption of sexual fantasies, Group would be entered first into the model and it accounted 84.85% of the subjects (model $\chi 2$ = .115, df=1, p>.05; logistic coefficient=.34, p>.05). With the addition of Post-operative Sexual Drive, the model could explain 90.9% (model $\chi 2 = 9.38$, df=1, p<.01; logistic coefficient=.31, p>.05). Finally, the variable of Follow-up Folk Belief was included as a predictor (logistic coefficient = -.52, p>.05). The model resulted in a 93.94% accurate classification rate (model $\chi 2$=13.62, df=2, p<.001). Women who had higher levels of post-surgery sexual drive and fewer folk beliefs would be more probably to resume sexual fantasies.

In summary, group classification was not a good predictor of the resumption of sexual activity. Although variables of Age, Post-operative Sexual Drive and Follow-up Folk Belief accounted for significant amount of variance of the variables of the resumption of sexual activities in the logistic regression models, only Age was the significant predictor of women's psychosexual adjustment -- the resumption of kissing and petting.

Hierarchical Multiple regression Analyses for Duration to Resume Sexual Activities

Three hierarchical multiple regression analyses were conducted for the time needed to resume sexual intercourse, kissing and petting, and sexual fantasies. Group was hierarchically entered into the regression equation followed by all psychosexual variables, measured at pre- and post-operation and follow-up stages of study. The psychosexual variables were entered by the stepwise method. The

criterion for entry of a predictor into the regression equation was set at $p<.05$ (probability of F to enter), so that only predictors that explained a significant amount of variance (or additional variance) in the dependent variable were allowed to enter.

Hierarchical regression results showed that Pre-operative Sexual Drive was significantly the best predictor to the time needed to resume sexual intercourse ($B=-.50$, $p<.01$). Group was not a significant predictor in this equation and could not explain any amount of variance of the dependent variable. The two variables of Group and Sexual Drive accounted for 22% of the variance in this psychosexual adjustment variable.

Significant predictors of resuming kissing and petting were Follow-up Sexual Satisfaction and Follow-up Folk Belief ($B=-.49$, $p<.01$; $B=-.57$, $p<.001$, respectively). Although Group was entered first in the equation, it was not significant predictor ($B=.00$, $p>.05$) and accounted for no variance of the dependent variable. In the second step, Follow-up Sexual Satisfaction was entered and explained 27% of the variance. In the third step, Follow-up Folk Belief was entered and explained an addition 24% of the variance.

For the time needed to resume sexual fantasies, no significant predictor was found. After Group was entered into the equation, its regression coefficient was .62 ($p>.05$) and accounted for 18% of the adjustment variance (see Table 10).

Table 10. Hierarchical Multiple Regression Analysis on Follow-up Sexual Functioning

Variables	β	Multiple R	R
(1) Time needed to resume intercourse			
Step 1			
Group	-.03	.00	.00
Step 2			
Group	-.01	.50	.20
Drive	-.50**		
(2) Time needed to resume kissing and petting			
Step 1			
Group	-.00	.00	.00
Step 2			
Group	-.14	.57	.27
FU Folk Belief	-.59**		
Step 3			
Group	-.10	.75	.51
FU Folk Belief	-.57***		
FU Satisfaction	-.49**		
(3) Time needed to resume sexual fantasy			
(no variables are entered into the equation)			

Note: First Step: Enter Group into the three Logistic Regression Models.
Second Step: Enter Age, Pre-operative variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Information, Gender Role (Femininity), Sexual Satisfaction, Sexual Fantasy, Folk Belief; Post-operative variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Satisfaction, Sexual Fantasy; Follow-up variables of Physical Symptoms, Psychological Symptoms, Body Dissatisfaction, Sexual Drive, Spousal Support, Eysenck Personality Questionnaire (Neuroticism Scale), Sexual Information, Gender Role (Femininity), Sexual Satisfaction, Sexual Fantasy, Folk Belief.

To conclude, group classification was not a significant predictor for the time taken to resume various sexual activities. Pre-level of Sexual Drive, Follow-up Sexual Satisfaction and Follow-up Folk Belief were found to be significant predictors.

DISCUSSION

The present study examined the psychosexual functioning among women treated for gynecological cancer in Hong Kong. The purposes of this study were (1) to compare the psychosexual functioning of women with cancer and benign gynecological disease; and (2) to examine the psychosexual adjustment of women who have undergone hysterectomy across three different points of time: pre- and post-operation and 1-year follow-up. A model of sexual functioning was adopted to explore the relationships between the three aspects of functioning among Chinese women and their sexual life. The three aspects were physical, psychological and social.

Comparison between Cancer and Benign Groups

Results revealed that the cancer and the benign groups were not significantly different in terms of demographic characteristics: age, educational level, employment status, the length of marriage, and the mean age of spouses, and the number of children. Regarding sex-related variables, there were significant group differences on the pre-operative and follow-up levels of sexual drive. Contrary to previous studies that showed similar sexual functioning morbidity among women

with either cancer or benign gynecological disease following surgical treatment (Andersen et al., 1989), the frequency of sexual activities of Chinese women with cancer in the present study was lower than that of women suffering from non-malignant disease. The present results may possibly be due to the deleterious effects of cancer. Here, the impact of cancer on sexual functioning of women is likely to be psychogenic since the present results revealed that there were similar levels of physical and psychological symptoms among women with either cancer or non-malignant disease. In other words, the effect of cancer on women's physical and psychological health was similar to that of benign gynecological disease. Therefore, the lowering level of sexual drive among women with cancer may be largely due to the sick role they play. "Sick role" refers to the social expectation on how a sick person may behave, for example, exemption from the normal social responsibilities and patient's desire to recover (Gelder, Gath, & Mayou, 1989). After being diagnosed with life-threatening disease such as cancer, women would perceive themselves as sick persons and concern about the life-and-death issue. Under these circumstances, sex becomes secondary. Moreover, the cancer sites involve sex organs would further affect the person's sex life. Patients with genital cancer will tend to avoid 'traumatizing' the genital organ with intercourse especially before the treatment. They may think that sex will worsen the disease and the disease may be contagious. Women and/or partners may feel shame if they ask for sex. Meanwhile, men may feel guilty if requesting sex when partners suffering from a life-threatening illness. However, reduction of frequency of sexual activity may not imply that they

were not interested in sex. In the following paragraph, it will be showed that women may still preserve their interests in sex and engage in autoerotic activity such as sexual fantasy.

The pre-and post-operative levels of sexual fantasy of cancer women were higher than those of women with benign disease. Previous research revealed that sexual fantasy was positively related with sexual drive (Nutter & Condron, 1983; Leitenberg & Henning, 1995). Theoretically, the higher the level of sexual drive a person has, he or she would engage in more frequent sexual activities, since sexual drive is the level of interest in sexual activities. On the contrary, the present study's results found that women with cancer had lower levels of sexual drive but higher levels of sexual fantasy than women suffering from benign gynecological disease. The results suggested that the higher level of sexual fantasy served as a compensation of women's inadequate sexual life.

As discussed above, the greater disruption of sexual activity in women with cancer compared to women with benign gynecological disease was less likely due to the former group being physically weaker or more psychologically disturbed than the latter group. Women may still have desire for sex, but would refrain from sexual activities due to their playing the sick role. Therefore women with cancer may generate more sexual fantasy, aiming at compensating their disrupted sex life. Nevertheless, it may be necessary to further explore women's interests in sex after being diagnosed to have cancer by adding questions about their self-report on sex

interests. In the present study, women's interests are only measured by the frequency of various sexual activities they engage in.

The present results also revealed that the benign group had a higher pre-operative level of body image dissatisfaction than the cancer group. For women with benign disease, heavy bleeding and uterine prolapse were the main symptoms that affected them. These symptoms threatened the person's sexual body image but had less obvious impact on their life. So, it makes sense that the damage of body image was evaluated much more negatively by them. As cancer is a life-threatening disease, women diagnosed with cancer are more likely to be concerned about the possibility of survival and the effectiveness of treatment, and are relatively less likely to focus on their body attractiveness, resulting in the lesser degree of body image dissatisfaction. Moreover, the common physical complaints of women with cancer comprised dyspareunia and post-coital bleeding (Johnston, 1994), which are less likely related to body dissatisfaction by nature.

As mentioned above, the present results showed that the two groups of women had similar amount of physical symptoms and severity of psychological distress, which do not support one of the hypotheses of this study. Large studies found that women with gynecological malignant disease had physical and psychological complaints, such as fatigue, post-coital bleeding, vaginal discharge, pain, depression (Weijmar Schultz et al., 1991; Andersen, 1984; Krumm & Lamberti, 1993), and research studies on hysterectomized women also reported the adverse physical and psychological sequelae (Gath et al., 1982; Richards, 1974;

Roeske, 1979; Salter, 1985; Tsoi et al., 1984). The psychological distress of women was related to their gynecological symptoms, for example, heavy bleeding and long-standing painful menstruation. Heavy bleeding produces tiredness and consequently a lowering of mood. The adverse psychological impact such as weakened health and sleeping problems were found to be long-lasting, until 6 months after hysterectomy (Tsoi et al., 1984). Thus, hysterectomy, whether for malignant or benign diagnoses, would adversely influence patients' physical and psychological health. However, the previous studies did not directly compare the two groups of patients in terms of their physical and/or psychological states. This area may be needed to be further explored.

At 1-year follow-up, with respect to the comparison of psychosexual adjustment between the cancer and benign groups, results revealed that cancer women had more sexual problems than their counterparts, which confirmed one of the hypotheses of this study. This may be due to the intrusiveness of the cancer treatment. In contrast to a radical hysterectomy to cancer, simple hysterectomy for women with benign disease would damage the anatomical structure of genital organ to a lesser degree, involving only uterus, the tubes and the ovaries. During radical hysterectomy also the tissue between the uterus and the pelvis well, the proximal vagina and the pelvis lymph nodes are removed. After the operation, women may have many sexual problems such as coital pain and inadequate vaginal lubrication, due to the sexual sensation loss and the inelasticity of vaginal scar (Cochran et al., 1987; Weijmar Schultz et al., 1991; Dobkin & Bradley, 1991).

Time Effects on Psychosexual Functioning

Physical Symptoms

Contrary to the hypothesis in the study, the physical symptoms of participants did not decrease after the operation, whilst results confirmed the deleterious effects of hysterectomy on women's physical health. Hysterectomized women reported more physical symptoms after the surgery and at 1-year follow-up. This result is consistent to the findings of study done by Tsoi et al. (1984) who interviewed 18 patients received hysterectomy. After 6-month follow-up, 56% of them reported weakened health, characterized by dizziness, numbness at different body parts, pain and even sleeping problems. However, their increased physical complaints may be due to psychogenic. They may anticipate that their physical health will be hampered by the mutilating surgery. Therefore, their appraisal of the aftermath of operation would lead them to look for signs that signify the impact of the operation, for example, complaining abdominal discomfort and pain over wound. As a result, they reported more physical symptoms after the operation.

Psychological Variables

The study confirmed the hypothesis that the levels of anxiety and psychological distress decreased significantly after the operation, indicated by the comparison between the pre- and post-operative scores on neuroticism and psychological symptoms. Roseke (1979) obtained similar results in his study which showed cancer women's level of depression improved after hysterectomy.

Consistent with previous Chinese studies(Ngan & Tang, 1984; Tsoi et al., 1984), Chinese women's psychological distress improved after the operation for either cancer or benign disease. Since surgery is one of the stressful life experience, negative emotional reactions, including anxiety, worries, fears, and uncertainties about its complications prevail. After surgery, women would feel relieved, think that they are cured and report improvement in their mental status.

However, at 1-year follow-up, the level of psychological symptoms elevated and was comparable to its pre-operative level. This demonstrated the prolonged effect of hysterectomy on women. Tang (1989) in her study revealed that uterus was psychologically important to women, as it was a symbol of their role adequacy. The absence of uterus would be a threat to body integrity and brings along psychological responses in reaction to infertility, concern about their sexual responsiveness, inability to satisfy partners' expectation, whether partners' sexual interests in them, and whether marital relationship would be ruined. All these worries would impact adversely on their psychological state and may cause increasing level of psychological symptoms, in a long run.

As hypothesized, hysterectomized women had higher levels of body image dissatisfaction after the operation. This is also supported by Derogatis' model (1980). Uterus is a symbol of women's role (Tang, 1989). Removal of sexual organ would affect their sense of womanhood and result in a higher level of body image dissatisfaction. Women's higher level of body image dissatisfaction may also be in response to the scar left on the abdomen.

Apart from the above mentioned psychological consequences of the operation, the level of femininity of women was also altered. Women became more feminine at 1-year follow up than they did before the operation. Perhaps, after going through the vigorous operation, hysterectomized women feel physically weaker and have more psychological symptoms. Their experience of a major life event and multiple physical and psychological complaints would elicit feminine characteristics, for example, gentleness and sympathy with others. As a result, they would treasure life and harmonious interpersonal relationship more. Moreover, the increased femininity may play a significant role in compensating for the loss of female reproductive organ which symbolizes femininity. After losing the symbol of womanhood, they would behave more feminine in order to increase their sense of gender identity.

Sexual Variables

Similar to various cancer studies (Andersen et al., 1989; Corney et al., 1992; Weijmar Schultz et al., 1992; Ngan & Tang, 1984; O'Hoy & Tang, 1985) and hysterectomy research (Kilkkus, 1983; Dennerstain, Wood, & Burrows, 1977), the present results showed that Chinese women reported significant diminution of sexual functioning. The post-operative and follow-up sexual drive among Chinese women were lowered than the pre-operative level. Chinese women engaged in lower frequency of sexual activity after surgery, probably due to three reasons. Firstly, hysterectomy may cause physiological and physical changes of genital organs,

affecting sexual sensation and arousal, and making vagina less elastic and less lubricated which, in turn, making intercourse painful (Weijmar Schultz et al., 1991). Consequently, women may engage in fewer sexual activity. Secondly, the maintenance of high levels of physical and psychological symptoms were noted at the stages of post-operation and 1-year follow-up. This reflected that participants did not recover from their surgery yet, which may relate to their unreadiness to restore their sexual relations. The third reason is a cultural factor. Chinese women may adhere to the Chinese folk beliefs about the need for prolonged abstinence from sexual activities for the sake of wound healing so that they would not resume or engage in fewer sexual activity after surgery (Ngan & Tang, 1984; Tang, 1989).

Psychosexual Adjustment

Overall, the present study showed that cancer women needed a maximum of 10 months to resume sexual activity, whereas women with benign disease required 6 months. Despite the fact that women with cancer required relatively longer time than their counterparts for resuming sexual activity, there were no significant group differences on percentages of women resuming various sexual activities including intercourse, kissing and petting, sexual fantasies, and the time needed to resume these sexual activities. With regard to their sexual problems, all of the participants reported sexual difficulties, primarily physical discomfort and decrease in vaginal lubrication. The cancer group had more sexual complaints than the benign group.

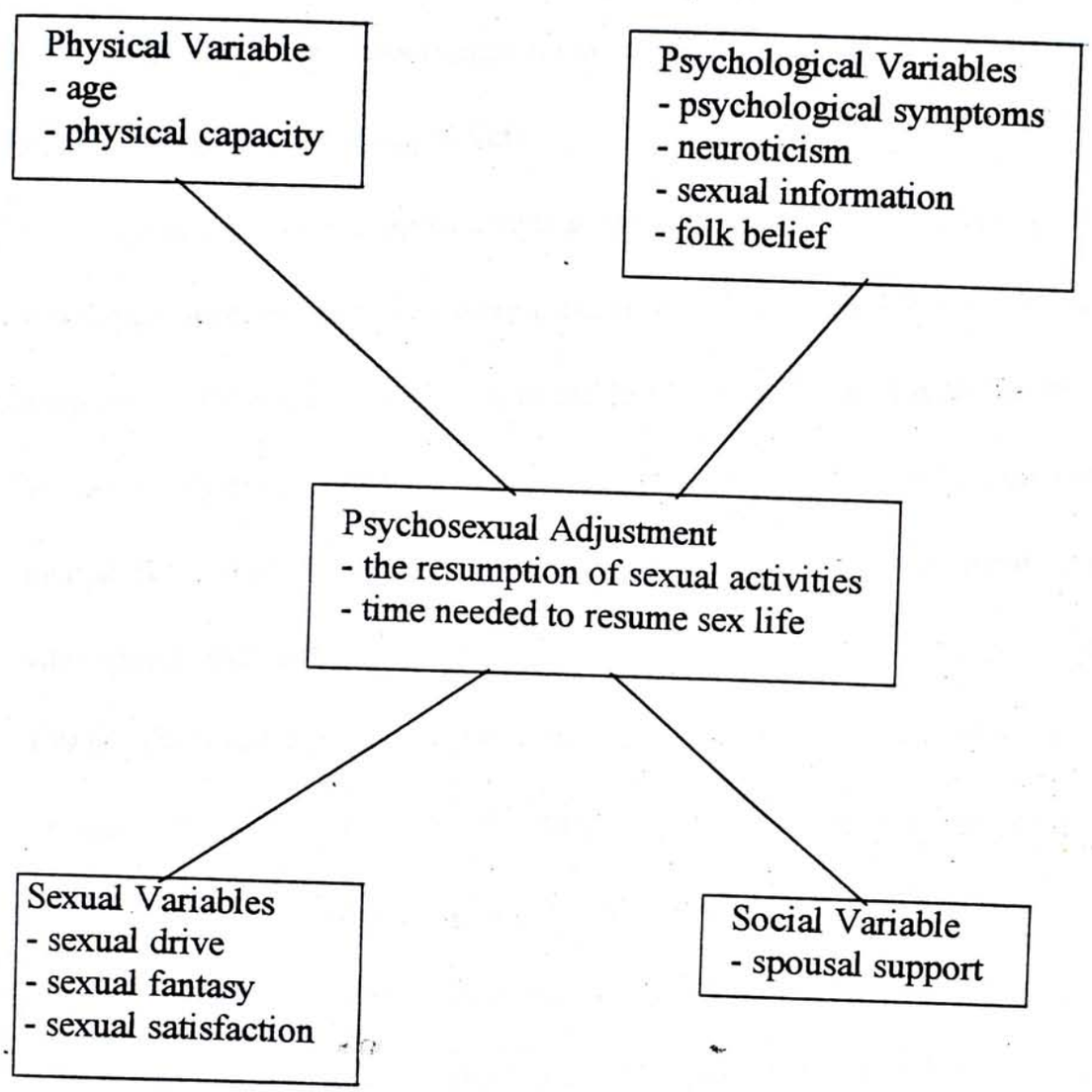
As supported by the comprehensive psychosexual model of Weijmar Schultz et al.(1992), physical, psychological and social variables were found to be related to the sexual functioning of women after the surgery in the present study. Apart from these three groups of variables, women's sexual functioning also significantly affected their psychosexual adjustment such as whether they resumed sexual activity, and how long they needed to resume their sexual relation. Variables of age, neuroticism, psychological symptoms, sexual information, pre-morbid levels of sexual drive, sexual fantasy and sexual satisfaction, spousal support, and additional cultural factor of folk belief were related to the resumption of sexual activity. Figure 4 shows the relationships among the four aspects of women's functioning and their psychosexual adjustment.

(1) Age

Results showed that younger age related to an increase in the likelihood of women's resumption of intercourse and sexual fantasies. In addition, age was also a significant predictor of the resumption of kissing and petting. Consistent with the study of Corney et al. (1992), resumption of sexual activity was linked with age. Age may be classified as a physical variable, as the younger women are physically more advantageous than the older ones. The former would recover from the drastic operation faster. Hence, the younger hysterectomized women would be likely to resume their sexual life and engage in sexual activity earlier. Moreover, social expectation may possibly be one of the reasons why age associated with psychosexual adjustment of women. Older women are often viewed as much less

Figure 4

An Integrated Model of Psychosexual Adjustment of Hysterectomized Chinese Women



sexually active (Beyer & Shainberg, 1991). Hysterectomized women may also believe themselves in being less interested in sex and cease to have sexual activity after the operation. Nevertheless, this area about women's interests in sex may need to be explored.

(2) Psychological variables (neuroticism, psychological symptoms, sexual information and folk sexual belief)

Contrary to the proposed sexual functioning model, higher levels of anxiety and psychological symptoms were related to higher probability to resume sexual fantasies. Although anxiety was found not to be associated with the frequency of sexual activities (Kelley & Byrne, 1992), it plays a role on increased amount of mental activities. A number of studies have identified 'fantasy-prone' individuals who spend considerable time fantasizing (see review in Leitenberg & Henning, 1995). Two studies reported that anxiety was positively correlated with frequency of fantasy (Brown & Hart, 1977; Wagman, 1967). Thus, anxious hysterectomized women may be more likely to have sexual fantasy after the operation.

Sexual information was correlated with the resumption of kissing and petting, which is supported by the sexual model of Derogatis (1979). Women who hold more accurate sexual information would enhance their sexual functioning. In the study by Cochran et al. (1987), the results reflected the fact that women with adequate sexual information demonstrated better psychosexual adjustment such as the resumption of sexual activity and fewer sexual difficulties. For example, the absence of uterus may

not diminish their feeling of orgasm since the orgasm relates to the contraction of vagina as well (Byer & Shainberg, 1991). If a woman believes that sex is only for the purpose of procreation, she would be more likely to cease her sexual life after receiving hysterectomy.

Culture is also crucial for explaining sexual behavior of women. The pre-operative and follow-up levels of folk belief were found to be positively related to the length of time needed to resume kissing and petting. Moreover, the follow-up level of folk belief was a significant predictor. Women who have more folk belief may adhere to traditional sex-role and feel the need to fulfill their spouses' sexual needs. Especially, Chinese folk sexual beliefs, like controlling a person's sex life will promote his/her physical health and minimizing masturbation may preserve his/her energy, would lead hysterectomized women to inhibit some of their sexual activity, but not kissing and petting. Additionally, owing to the traditional health belief, women and partners may abstain from sexual intercourse, but may be motivated to try other intimate behavior. Leiber, Plaumb, Gerstenzang and Holland (1976) reported that women with traditional sex roles would tend to suppress their needs and emotion so that they would decrease in the desire for intercourse but increase in the desire for non-sexual physical closeness.

(3) Social variable - Spousal support

The significance of spousal support on psychosexual adjustment of women should not be ignored. Present results revealed that women having higher level of

spousal support would engage in kissing and petting later but would be more likely to resume intercourse. Consistent with the results from the study by Cochran et al. (1987) which argued that women who were more satisfied with their relationship were more likely to engage in sexual relations with their partners. Van de Wiel et al. (1990) also supported the importance of spousal support in coping with physical and emotional problems after the diagnosis and treatment of cancer. Helstrom (1994) suggested that with the lack of good socioemotional support from partners during the period after the hysterectomy, women would have higher risk of sexual deterioration. Meanwhile, in the present study, higher level of spousal support may not be necessary to be beneficial for women to adjust their sex life after the operation, instead they needed longer to resume kissing and petting. This may be due to their partners' consideration for women who have treated for gynecological disease. They would believe that women are fatigue after receiving operation and would be afraid to hurt them during the sexual activities.

(4) Sexual variables

Present results indicated that pre-morbid sexual drive, sexual fantasy and sexual satisfaction were related to the psychosexual adjustment of women. Women who had higher levels of sexual drive across the three different time points, would be more likely to resume intercourse, and kissing and petting and resume these behaviors earlier. The pre-operative level of sexual drive was also a significant predictor on the time needed to resume kissing and petting. The premorbid level of

sexual fantasy related with the resumption of sexual fantasy. Women have already had sexual fantasy before the operation would maintain their fantasy life after the operation.

Similar to previous studies which suggested that the most important factor for postoperative sexuality was preoperative sexual activity and enjoyment (Helstrom, 1994; Horton, 1991), women's past sexual experience would enhance their psychosexual adjustment after the operation in the present study. In Helstrom's study (1994), 104 women were interviewed before and 1year after subtotal hysterectomy. Data concerning their sexual life before and after the operation were collected. The results showed that the most important factor for post-operative sexuality (an increase in sexual drive and coital frequency) was pre-operative sexual activity and enjoyment. In other words, if a woman is not interested in sex, or does not find sex as enjoyable nor satisfying, she may not be motivated to engage in any sexual activities after the operation. The operation may even be used as an excuse to reject partner's request.

Limitations of the Present Study and Recommendations

The present study was a controlled prospective longitudinal study, consisting of two groups of women with cancer and benign gynecological disease. The participants' psychosexual functioning was assessed at three different points of time: pre- and post-treatment and 1-year follow up. Similar to previous Chinese and Western studies, there are several methodological limitations that need to be

considered before we can generalize to the impact of gynecological cancer on Chinese women as a whole.

The first limitation is the limited representativeness of our sample. Women were recruited from only one regional government hospital, which is unlikely to be representative of the whole population in Hong Kong. Therefore, an attempt to recruit either larger or more representative samples from different regions or adopt random selection of participants may be considered in the future.

Secondly, the sample size was rather small. Thus, it might not be sensitive enough to detect differences or associations among variables. For example, there were only 8 subjects reported that they resumed sexual fantasies after the operation. Significant predictors could not be found in logistic regression analyses. Although various psychosexual variables were able to account for significant amounts of dependent variables, they were not found to be significant in the current analysis.

Thirdly, an absence of a control group makes it difficult to determine the extent of sexual impairment as a result of gynecological disease and its surgical treatment. Healthy women could be recruited to collect the baseline normative data of their sexual functioning and to compare with that of women with gynecological problems.

Finally, the limitation of self-administered questionnaires and face-to-face interview exists in the present results. Women would be too embarrassed to report their sexual activities, for example, masturbation and sexual intercourse. Recent studies showed that women's subjective perception might not be an accurate

indicator of their sexual functioning. In Ferroni's (1994) study, women's perception of their sexuality was impaired by their gynecological conditions. In fact, their frequency of coital activity was the same as healthy women. Moreover, Chinese women have deep-rooted inhibition about sexual matters and tend not to discuss it. The results of Tang's (1989) study noted that direct questions were needed to elicit women's sexual difficulty. Otherwise, they who underwent gynecological operation for benign conditions would only complain about their physical symptoms or their worries about the operation. This may be related to the traditional culture. Chinese women have been assigned a passive role so that they are reluctant and ashamed to discuss their body and sex life. Thus, information regarding psychoseuxal functioning of women would be gathered from multiple sources, including reports from sexual partners and psychophysioloigcal means.

Implications for Future Studies

The present study revealed that an alteration in sexual functioning of women has a multifaceted basis and is affected by various aspects of women's functioning. Psychologically, women harbor anxiety and fear about the disease and the operation's aftermath. By providing information about the disease, the medical procedure and the consequences of its treatment would enable them to alleviate the psychological distress and anxiety of patients (Tsoi et al., 1983).

Partner's support is important in the resumption of intercourse and intimate behavior. There are two people engaging in most sexual behavior so that they will be

mutually affected. Gynecological disease, either benign or malignant, and its treatment will adversely affect both sufferers and their partners (van de Wiel et al., 1990). Those men would also feel anxious and worrisome. If men reject their diseased partners or do not initiate sexual activity in light of their anxiety or women's problems, women would probably remain sexually inactive, as long as women usually tend to be passive in sexual relations. For Chinese women, their passivity in sexual relations would be more prominent. They usually are the submissive partners in the related sexual activities and are expected not to initiate sex. Hence, intervention to promote the resumption of sexual activities and/or to reduce sexual problems after gynecological treatment could best be directed not only to patients but to the partners as well. Both parties should be counseled that even if desire for sexual intercourse ceases, there is still desire for physical closeness such as body caressing. This kind of education for sexual partners before and after the operation would help them to remove some of the obstacles to resume sexual activity.

Given the importance of cultural belief on sexual behavior of women, the future research may emphasize on the cultural impact on intimate relationship. In the present study, the Folk Belief self-constructed scale yielded a fair internal consistency at the pre-operation study. This scale may be modified by developing more items and constructing a larger measurement scale, rather than only Yes/No answers. Apart from the six items used in the present study, items about women's knowledge of reproductive anatomy and physiology may be added. Their sexual

knowledge also plays an important role in determining women's concern about disease and removal of those organs and their functions. Their concern may influence their body image, gender identity, their reactions to gynecological problems and psychosexual adjustment after the operation.

In view of the importance of premorbid sexual functioning on women's psychosexual adjustment, there is a need to assess their premorbid sexual and relationship problems. Specific attention should be directed to their sexual drive and sexual information. In the present study, sexual drive is only measured by the frequency of sexual activity women participate in. However, their self-report on subjective interests in sex is also important to identify the extent of impact of cancer on sexual functioning of women. Accordingly, pre-operation sexual counseling would be provided to reduce some of patients' and partners' misconceptions and anxiety, thus to improve the psychosexual adjustment of women. One study found that women with gynecological cancer who received counseling reported a higher frequency of sexual intercourse during the first year after treatment than a control group (Capone, Good, & Westie, 1980). It is vitally important that the staff on ward or in outpatient unit are able to focus on and initiate discussion on both psychological and sexual matters. By accepting and acknowledging women's sexuality and needs, giving reassurance, information, and education to women and their partners, women's psychosexual functioning and adjustment after the operation would definitely be enhanced.

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Appendix A

姓名：_____ 年齡：_____

體重：_____

最高教育程度：____ 小學未畢業
____ 小學畢業
____ 中三
____ 中學畢業
____ 預科／工專
____ 大專／大學及以上

子女人數：____ 無
____ 有 ____男（數目）：____ 年齡
____女（數目）：____ 年齡

職業：___ 全職 行業：_____
___ 兼職 職位：_____
___ 無外出工作

配偶資料：

配偶年齡：____

最高教育程度：____ 小學未畢業
____ 小學畢業
____ 中三
____ 中學畢業
____ 預科／工專
____ 大專／大學及以上

職業：___ 全職 行業：_____
___ 兼職 職位：_____
___ 無外出工作

結婚多久？_____年

Appendix B

徵狀檢查表

	無	輕度	中度	極度
1）身體不適	○	○	○	○
2）疲勞	○	○	○	○
3）噁心	○	○	○	○
4）嘔吐	○	○	○	○
5）沒有胃口	○	○	○	○
6）口腔潰爛	○	○	○	○
7）禿髮，脫髮	○	○	○	○
8）皮膚變色	○	○	○	○
9）靜脈輸入	○	○	○	○
10）排流物	○	○	○	○
11）人工肛門	○	○	○	○
12）痛礎	○	○	○	○
13）傷口不適	○	○	○	○
14）腹部不適	○	○	○	○
15）陰道分秘	○	○	○	○

Appendix C

以下的問題是有關你的性格，請以你在過去幾年內的感受或行為表現為標準作答「√」.

	是	否
1. 你的情緒是否常有起伏?	□	□
2. 你是否有時會無緣無故地感到自己很可憐?	□	□
3. 你是一個急躁的人嗎?	□	□
4. 你是一個感受容易受傷害的人嗎?	□	□
5. 你是否常有「厭倦」之感嗎?	□	□
6. 你覺得自己是一個神經緊張的人嗎?	□	□
7. 你是一個多憂慮的人嗎?	□	□
8. 你認為自己是個緊張的人，如同「拉緊」的弦一樣嗎?	□	□
9. 遇到一次難堪的經歷後，你會否在一段長時間後仍感到難受?	□	□
10. 你曾試過「神經過敏」嗎?	□	□
11. 你常感到孤單嗎?	□	□
12. 你常被罪疚感所苦惱嗎?	□	□

Appendix D

第二部份

以下一表是人們常有的難題和投訴，請小心細讀每一項及✓出最能形容使你在過往兩星期內（連今天）有多少悲痛和困擾．每項只✓一個數字及填答每一項目．

你被困擾有多深：

	沒有 0	少許 1	中度 2	稍多 3	極度 4
1. 神經緊張或內心震抖	1.□	□	□	□	□
2. 昏暈或眩暈	2.□	□	□	□	□
3. 別人能控制你的思念	3.□	□	□	□	□
4. 感覺大多數的困難都是別人使你遇上	4.□	□	□	□	□
5. 記憶事情有問題	5.□	□	□	□	□
6. 容易受煩擾和刺激	6.□	□	□	□	□
7. 心或胸部有痛礎	7.□	□	□	□	□
8. 在公眾地方或街上感到害怕	8.□	□	□	□	□
9. 想到結束你的生命	9.□	□	□	□	□
10. 感到大部份人都不可信任	10.□	□	□	□	□
11. 胃口差	11.□	□	□	□	□
12. 沒有原因地突然驚恐	12.□	□	□	□	□
13. 不能控制的發脾氣	13.□	□	□	□	□
14. 雖與人一起依然感到孤獨	14.□	□	□	□	□
15. 辦事時感到有障礙	15.□	□	□	□	□
16. 感覺孤單	16.□	□	□	□	□
17. 感覺憂鬱	17.□	□	□	□	□
18. 對事物不感到興趣	18.□	□	□	□	□
19. 感覺害怕	19.□	□	□	□	□
20. 你的感覺容易被傷害	20.□	□	□	□	□

	沒有 0	少許 1	中度 2	稍多 3	極度 4
21. 感覺人們不友善或不喜歡你	21.□	□	□	□	□
22. 感覺比別人卑微	22.□	□	□	□	□
23. 想嘔吐或反胃	23.□	□	□	□	□
24. 感覺別人監視或談論你	24.□	□	□	□	□
25. 失眠	25.□	□	□	□	□
26. 需要重覆檢視自己所做的事	26.□	□	□	□	□
27. 不能下決定	27.□	□	□	□	□
28. 乘巴士,地下鐵或火車時感覺害怕	28.□	□	□	□	□
29. 呼吸有困難	29.□	□	□	□	□
30. 感覺忽冷又忽熱	30.□	□	□	□	□
31. 有些事物,地方或活動使你驚慌,所以你要避開	31.□	□	□	□	□
32. 思想一片空白	32.□	□	□	□	□
33. 身體部份地方麻木或刺痛	33.□	□	□	□	□
34. 有需要為罪而受罰的思想	34.□	□	□	□	□
35. 對前途感覺沒希望	35.□	□	□	□	□
36. 不能集中精神	36.□	□	□	□	□
37. 身體有些地方感覺虛弱	37.□	□	□	□	□
38. 感覺緊張或激動	38.□	□	□	□	□
39. 想及死亡	39.□	□	□	□	□
40. 有衝動去打或傷害別人	40.□	□	□	□	□
41. 有衝動去破壞或打爛物件	41.□	□	□	□	□
42. 與別人一起時感到不自然	42.□	□	□	□	□

		沒有 0	少許 1	中度 2	稍多 3	極度 4
43.	在多人的地方,如購物或看電影時感覺不自然	43.□	□	□	□	□
44.	未曾嘗試與別人有親密的感覺	44.□	□	□	□	□
45.	感覺恐懼或驚惶	45.□	□	□	□	□
46.	常常與人辯論	46.□	□	□	□	□
47.	獨處時感到緊張	47.□	□	□	□	□
48.	別人未能給你的成就應得的嘉許	48.□	□	□	□	□
49.	感覺不安靜,甚至不能靜靜的坐下來	49.□	□	□	□	□
50.	感覺沒有價值	50.□	□	□	□	□
51.	感覺如果你容許,別人會討你的便宜	51.□	□	□	□	□
52.	有罪惡感	52.□	□	□	□	□
53.	覺得你的精神有些問題	53.□	□	□	□	□

第三部份

以下是一些有關於你怎樣感覺你身體的句子，請在句子旁✓ 最適合的，

	不是 0	少許 1	中度 2	稍多 3	非常近相 4
1. 我比理想中差點吸引力	1.□	□	□	□	□
2. 我太肥	2.□	□	□	□	□
3. 我喜歡別人見我穿泳衣的樣子	3.□	□	□	□	□
4. 我太瘦	4.□	□	□	□	□
5. 如果我的愛侶見我裸體，我會感到害羞	5.□	□	□	□	□
6. 我太矮	6.□	□	□	□	□
7. 我的身體有些部份我一點也不喜歡	7.□	□	□	□	□
8. 我太高	8.□	□	□	□	□
9. 我有太多體毛	9.□	□	□	□	□
10. 我的樣貌吸引人	10.□	□	□	□	□
11. 我的身體有曲線及合比例	11.□	□	□	□	□
12. 我的乳房吸引人	12.□	□	□	□	□
13. 男性會被我的身體吸引	13.□	□	□	□	□
14. 我有吸引人的腿部	14.□	□	□	□	□
15. 我對我的陰部的外觀感到高興	15.□	□	□	□	□

第四部份

以下是一些有關性功能的敘述，請細心閱讀每句，讀後請在你同意的句子後√上是，在你不同意的句子後√上否.

	是	否
1. 通常男性比女性容易有性高潮	1.□	□
2. 在行經期間內性交是不健康的	2.□	□
3. 射精前陽具必須堅挺	3.□	□
4. 一個好的性關係不必雙方同時有性高潮	4.□	□
5. 夫妻任何一方有手淫便顯示婚姻在失調	5.□	□
6. 割除子宮後的女性不能再有性高潮	6.□	□
7. 男性在將近二十歲時達到性慾的高峰期，女性則在三十歲期間	7.□	□
8. 女性在行經期間也能成孕	8.□	□
9. 大多數男女在60歲過後都失去性慾	9.□	□
10. 男性的性高潮比女性的更有滿足感	10.□	□
11. 滑潤消毒劑及避孕套可避免受孕或性病傳染	11.□	□
12. 女性的陰道的分泌潤滑相等於男性因性興奮而勃起	12.□	□
13. 口交是不健康的，因為會引致性病	13.□	□
14. 女性在性交時有幻想表示對性生活不滿足	14.□	□
15. 性交的頻密可以正確地量度關係是否成功	15.□	□
16. 人手刺激女性的生殖器官也能帶來性高潮	16.□	□
17. 女性停經後大大減退性慾	17.□	□
18. 女性性衝動與男性一樣頻密	18.□	□
19. 有效的避孕方法是性交後灌洗法	19.□	□
20. 性交後有一段時間男性未能對性刺激有所反應	20.□	□
21. 女性在數次性興奮後仍能對性刺激保持性反應	21.□	□
22. 大多數女性雖未有性高潮仍能享受性愛	22.□	□
23. 男性陽具越大越能為女性在性交時帶來滿足	23.□	□
24. 女性停經後不能在受孕	24.□	□
25. 男性勃起是因為陽具充血	25.□	□
26. 陰蒂不是女性生殖器官特別敏感的部位	26.□	□

第五部份

以下是一連串有關性行為的不同方面的敘述，我們希望知道你對每一方面有多少同意或不同意，請在空格上 √ 表示你的同意或不同意程度.
請填答每一句子及盡速作答.

		非常不同意 -2	不同意 -1	非不同意非同意也 0	同意 1	非常同意 2
1.婚前性交對日後婚姻適應有利	1.	□	□	□	□	□
2.同性戀愛是邪惡及不健康的	2.	□	□	□	□	□
3.性的正確道德意義是生小孩	3.	□	□	□	□	□
4.口交及性交是同等的令人喜悅	4.	□	□	□	□	□
5.由女性主動引起性關係是違背自然的	5.	□	□	□	□	□
6.手淫是完全正常及健康的性行為	6.	□	□	□	□	□
7.婚外性行為難免會引致嚴重的問題及婚姻的極大困境	7.	□	□	□	□	□
8.女性不應固意引誘男性，只應等待男性的注意	8.	□	□	□	□	□
9.觀看色情的電影是富娛樂性及興奮的	9.	□	□	□	□	□
10.男性及女性應在性交及前奏時採取主動及被動各種角色	10.	□	□	□	□	□
11.大多數同性戀者都是極度擾亂的人及會危害社會	11.	□	□	□	□	□
12.兩個成年人在相方同意下所做的任何性行為都應看為正常	12.	□	□	□	□	□
13.性行為不應巧慮道德標準	13.	□	□	□	□	□
14.以不同的衣飾增加性趣味應視為有創造力	14.	□	□	□	□	□
15.如書籍有清晰地形容性行動的文章，通常都是無價值的	15.	□	□	□	□	□
16.有婚前性行為的夫妻通常日後都會後悔的	16.	□	□	□	□	□

		非常不同意 -2	不同意 -1	非不同意也非同意 0	同意 1	非常同意 2
17. 如果四方面都同意，交換妻子是可以接受的	17.	□	□	□	□	□
18. 男性會對那些容許婚前性交的女性失去尊重	18.	□	□	□	□	□
19. 對已婚的夫妻來說互相手淫是性交的低劣代替	19.	□	□	□	□	□
20. 娼妓是不道德，墮落及在社會上不容許的	20.	□	□	□	□	□
21. 人體生殖器官看來是令人討厭的	21.	□	□	□	□	□
22. 接觸及撫摸我的伴侶的身體是興奮及刺激的	22.	□	□	□	□	□
23. 集體性行為是奇異及令人討厭的思想	23.	□	□	□	□	□
24. 婚外性行為能使人成為更佳的婚姻伴侶	24.	□	□	□	□	□
25. 配偶應嘗試以不同位置性交以增加他們的性經驗	25.	□	□	□	□	□
26. 手淫是性解放的健康途徑	26.	□	□	□	□	□
27. 同性戀是性方向的問題，不是好與壞，也不是病態或健康的問題	27.	□	□	□	□	□
28. 口交不是正常的性行為	28.	□	□	□	□	□
29. 裸體婦人的畫像是看來美麗及令人興奮	29.	□	□	□	□	□
30. 猥褻文字通常是邪惡及令人討厭的，而對年青人更是特別有害	30.	□	□	□	□	□

第六部份

在這部份我們列出人會有不同的性思念及幻想，我們希望你能指出那些你曾在白日中或睡夢中有的幻想．請在你曾經歷的幻想旁標上✓．

1．在同一時間內有多過一個性伴侶	1．□
2．用不尋常的位置發生性交	2．□
3．與動物發生性行為	3．□
4．鞭打或打你的性伴侶	4．□
5．強逼你的性伴侶服從一些性行為	5．□
6．穿上異性的服飾	6．□
7．使用人造的器具作性的刺激	7．□
8．是一名娼妓	8．□
9．在性冒險中有被禁止的愛侶或情婦	9．□
10．同性戀的幻想	10．□
11．交換性伴侶的幻想	11．□
12．在性交中被縛	12．□
13．貶低性伴侶	13．□
14．感覺在性方面被貶低	14．□
15．肛門性交	15．□
16．穿著性感的衣服	16．□
17．有性交的行為	17．□
18．幻想你是異性	18．□
19．口交	19．□
20．被強迫服從一些性行為	20．□

第七部份

以下我們希望知道你通常從事一些性活動的頻密次數．請在最接近的頻次類別下✓，類別由 ` 沒有 ' 至 ` 每天四次或以上 '，請填答所有項目．

	沒有	每月少於一次	每月一至三次	每週一次	每週二至三次	每週四至六次	每日一次	每日二至三次	每天四次或以上
1. 性交	□	□	□	□	□	□	□	□	□
2. 手淫	□	□	□	□	□	□	□	□	□
3. 接吻及愛撫	□	□	□	□	□	□	□	□	□
4. 性幻想	□	□	□	□	□	□	□	□	□

5. 你理想中的性交次數 _____

6. 你由幾歲開始對性活動有興趣? _____

7. 你由幾歲開始性交? _____

8. 你希望手術後恢復性生活否？

○ 是，次數：_____／星期

○ 否，因爲：_____

第八部份

以下是一些有關性滿足的句子,請在適合你的句子旁√ 正, 不適合你的句子旁√ 錯.

	正	錯
1. 通常我對我的性伴侶感到滿足	1. □	□
2. 我感覺我的性事未夠頻密	2. □	□
3. 我的性生活不夠多款式	3. □	□
4. 通常我在性事後感到鬆弛和滿足	4. □	□
5. 通常性事都未夠持久	5. □	□
6. 我對性不大感興趣	6. □	□
7. 通常性交中我都有滿足的高潮	7. □	□
8. 性交前熱身對我有很大的刺激作用	8. □	□
9. 通常我都憂慮我的性表現	9. □	□
10. 通常我和我的伴侶在性中有很好的溝通	10. □	□

我們希望你能用以下的評價尺度記下你對你的性關係滿足的程度,請於最能表示你現在的性關係的空格上劃上√ 號.

8. 不能再好 □
7. 一流 □
6. 好 □
5. 比平常好一點 □
4. 適中 □
3. 不太足夠 □
2. 劣 □
1. 非常不足夠 □
0. 不能再差的了 □

Appendix E

請你閱讀以下句子，並在適當○上 '√' 表示你的選擇。

	是	否
1）精液是非常珍貴，需要小心保存。	○	○
2）減少手淫／自瀆可以保留精力。	○	○
3）過多手淫／自瀆會引致腎虧或身體虛弱。	○	○
4）聽過關於 '縮陽' 的故事。	○	○
5）控制性生活／性行爲可以保障健康。	○	○
6）與行經期間的女性進行性行爲會引致疾病。	○	○

Appendix F

以下句子是關於你與你配偶在過去兩個月的關係。請在適當位置 '√' ，表示你的答案。

	非常同意	同意	不同意	非常不同意
1）我的配偶能給我精神支持。	○	○	○	○
2）當我向我配偶傾訴心事時，我感到不習慣／不自然。	○	○	○	○
3）我的配偶樂意聆聽我的說話。	○	○	○	○
4）我的配偶能分享我大部份的興趣。	○	○	○	○
5）當我情緒低落時，我可以找我的配偶，而事後不會感到尷尬。	○	○	○	○
6）我可以依靠我的配偶作爲情緒的支持。	○	○	○	○
7）我的配偶容易諒解我的需要。	○	○	○	○
8）我的配偶可以幫助我解決問題。	○	○	○	○
9）我與我的配偶有親密關係。	○	○	○	○
10）我希望我的配偶有所改變。	○	○	○	○

Appendix G

姓名：_____ 年齡：_____ 體重：_____

請圈出適當答案。

1） 在手術後，這一年期間，你有沒有接受其他手術？

否 / 有，日期：_____
手術名稱：_____
次數：_____

2） 在手術後，這一年期間，你有沒有接受放射治療？

否 / 有，日期：_____
次數：_____

3） 在手術後，這一年期間，你有沒有接受藥物治療？

否 / 有，日期：_____
次數：_____

4） 你預期你的疾病情況：

1） 不知道/不清楚
2） 不可醫治
3） 沒希望
4） 絕症
5） 可醫治
6） 可康復
7） 不可康復
8） 希望康復
9） 會復發
10） 害怕復發
11） 不理想
12） 已復原
13） 其他：請說明_____

1) 手術後多久，才恢復以下的性生活：

(i) 性交 _____

(ii)接吻及愛撫_____

(iii)手淫 _____

(iv)性幻想 _____

2) 醫生有沒有與你討論關於性生活的問題？ 有／沒有

3) 有沒有人與你討論關於性生活的問題？

○ 沒有

○ 有，請說明：_____

4) 在進行性行為時，你有否以下的情況出現：（可選擇多於一項）

○ 感到不自然
○ 陰道痛
○ 感到陰道不舒服
○ 陰道潤滑不足
○ 陰道肌肉不能鬆弛
○ 陰道肌肉硬
○ 出血
○ 擔心你的性伴侶不滿意你的性表現
○ 其他，請說明：_____

5) 你認為你的性表現較手術前

○差 ○一樣 ○好